Isabel S. Gloege

STATE OF CALIFORNIA
The Resources Agency
Department of Water Resources

Central District

ANDERSON RESERVOIR LIMNOLOGIC INVESTIGATION

A Study by the Department of
Water Resources and the
Santa Clara Valley Water District

MAY 1978

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FOREWORD

The California Department of Water Resources and the Santa Clara Valley Water District cooperated in conducting a limnology study of Anderson Reservoir. This reservoir is operated by Santa Clara Valley Water District to provide water to recharge the ground water aquifers near San Jose. The reservoir, located in such close proximity to the densely populated Bay Area, has become very popular for fishing and other recreational activities.

Because of the nearness of the watershed to a large area of heavy employment, there is much pressure for residential development of this land. There is a need to plan and manage the activities and development within the watershed in order to prevent these activities from degrading the good limnologic conditions which now exist in Anderson Reservoir.

Wayne MacRostie
Wayne MacRostie
Chief, Central District
Department of Water Resources

May 23, 1978

for
Lloyd C. Fowler
Chief Engineer
Santa Clara Valley Water District

May 23, 1978

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State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Central District

Wayne MacRostie	Chief

This cooperative report was prepared in part under the direction of:

Donald J. Finlayson	Chief, Investigations Branch
Harold H. Higgins	Associate Engineer, W.R.

by

William J. McCune	Assistant Engineer, W.R.

Assisted by

Darrel B. Perkins	Water Resources Technician II
Timothy S. Lee	Student Assistant
Phillip Fortes	Student Assistant

SANTA CLARA VALLEY WATER DISTRICT

Lloyd Fowler	Chief Engineer

Other parts of the report were prepared under the direction of:

David K. Gill	Advanced Planning Manager
Eugene S. Watson	Division Engineer, Resources Management Division

by

Isabel S. Gloege	Associate Civil Engineer Resources Management Division, Advanced Planning

The material for Chapter VII was prepared by Keith R. Anderson, Associate Fishery Biologist with the assistance of G. Gary Scoppettone, Fish and Wildlife Seasonal Aid of the California Department of Fish and Game.

CONVERSION FACTORS

English to Metric System of Measurement

Quantity	English unit	Multiply by	To get metric equivalent
Length	inches (in)	25.4	millimetres (mm)
		.0254	metres (m)
	feet (ft)	.3048	metres (m)
	miles (mi)	1.6093	kilometres (km)
Area	square inches (in^2)	6.4516×10^{-4}	square metres (m^2)
	square feet (ft^2)	.092903	square metres (m^2)
	acres	4046.9	square metres (m^2)
		.40469	hectares (ha)
		.40469	square hectometres (hm^2)
		.0040469	square kilometres (km^2)
	square miles (mi^2)	2.590	square kilometres (km^2)
Volume	gallons (gal)	3.7854	litres (l)
		.0037854	cubic metres (m^3)
	million gallons (10^6 gal)	3785.4	cubic metres (m^3)
	cubic feet (ft^3)	.028317	cubic metres (m^3)
	cubic yards (yd^3)	.76455	cubic metres (m^3)
	acre-feet (ac-ft)	1233.5	cubic metres (m^3)
		.0012335	cubic hectometres (hm^3)
		1.233×10^{-6}	cubic kilometres (km^3)
Volume/Time (Flow)	cubic feet per second (ft^3/s)	28.317	litres per second (l/s)
		.028317	cubic metres per second (m^3/s)
	gallons per minute (gal/min)	.06309	litres per second (l/s)
		6.309×10^{-5}	cubic metres per second (m^3/s)
	million gallons per day (mgd)	.043813	cubic metres per second (m^3/s)
Mass	pounds (lb)	.45359	kilograms (kg)
	tons (short, 2,000 lb)	.90718	tonne (t)
		907.18	kilograms (kg)
Power	horsepower (hp)	0.7460	kilowatts (kW)
Pressure	pounds per square inch (psi)	6894.8	pascal (Pa)
Temperature	Degrees Fahrenheit (°F)	$\frac{tF - 32}{1.8} = tC$	Degrees Celsius (°C)

CHAPTER I

SUMMARY AND RECOMMENDATIONS

1. Anderson Reservoir, located on Coyote Creek, is a 17-year old reservoir operated by the Santa Clara Valley Water District, which provides water for recharge of the Santa Clara Valley ground water basin and for recreation.

2. Current base line limnologic conditions of Anderson Reservoir are generally good and are summarized as follows:

   a. Concentrations of nitrogen and phosphorus just after the 1975 spring overturn were moderate, but such concentrations should not contribute to the overproduction of algae in the broad open waters of the lake.

   b. Dissolved Oxygen (DO) may not be a problem to fishlife in the lake since the upper part of the reservoir had DO concentrations greater than 5 milligrams per litre, during the entire year of the study.

   c. Standing crops of phytoplankton which existed in the lake on several occasions during 1975 are comparable to those of other lakes where total fish production is satisfactory.

   d. Zooplankton levels in the lake should be adequate to support a fairly substantial fish population.

3. An evaluation of the current limnologic conditions indicates that the overall biologic productivity is at a moderate level and this productivity results from a well-balanced biologic community.

4. In the evaluation of environmental effects of proposed developments, careful consideration should be given to the contribution of additional nutrients to the lake. These nutrients could lead to undesirable levels of algal production.

5. The sport fishery which currently supports 32,000 angler days a year, can best be maintained by the following management practices:

   a. Stocking game fish best adapted to Anderson Reservoir.

   b. Introduction of artificial shelters to supplement the current scarcity of fish cover.

6. Management of the lake should include a program of limnologic monitoring to detect changes and indicate the need for changes in management of the basin and/or the lake. In conjunction with this, a water quality monitoring program should be established on the tributary streams.

7. Maintenance of the recording anemometer should be continued in the future.

8. Although Anderson Reservoir was constructed for the primary purpose of impounding surface runoff and subsequent recharge of the ground water basin, it is a valuable asset to the local community from the standpoint of aesthetics and providing recreation. These uses should be protected and maintained by establishment of regulations for basin development and by the adoption of good management practices for land use in the basin.

CHAPTER II

INTRODUCTION

General

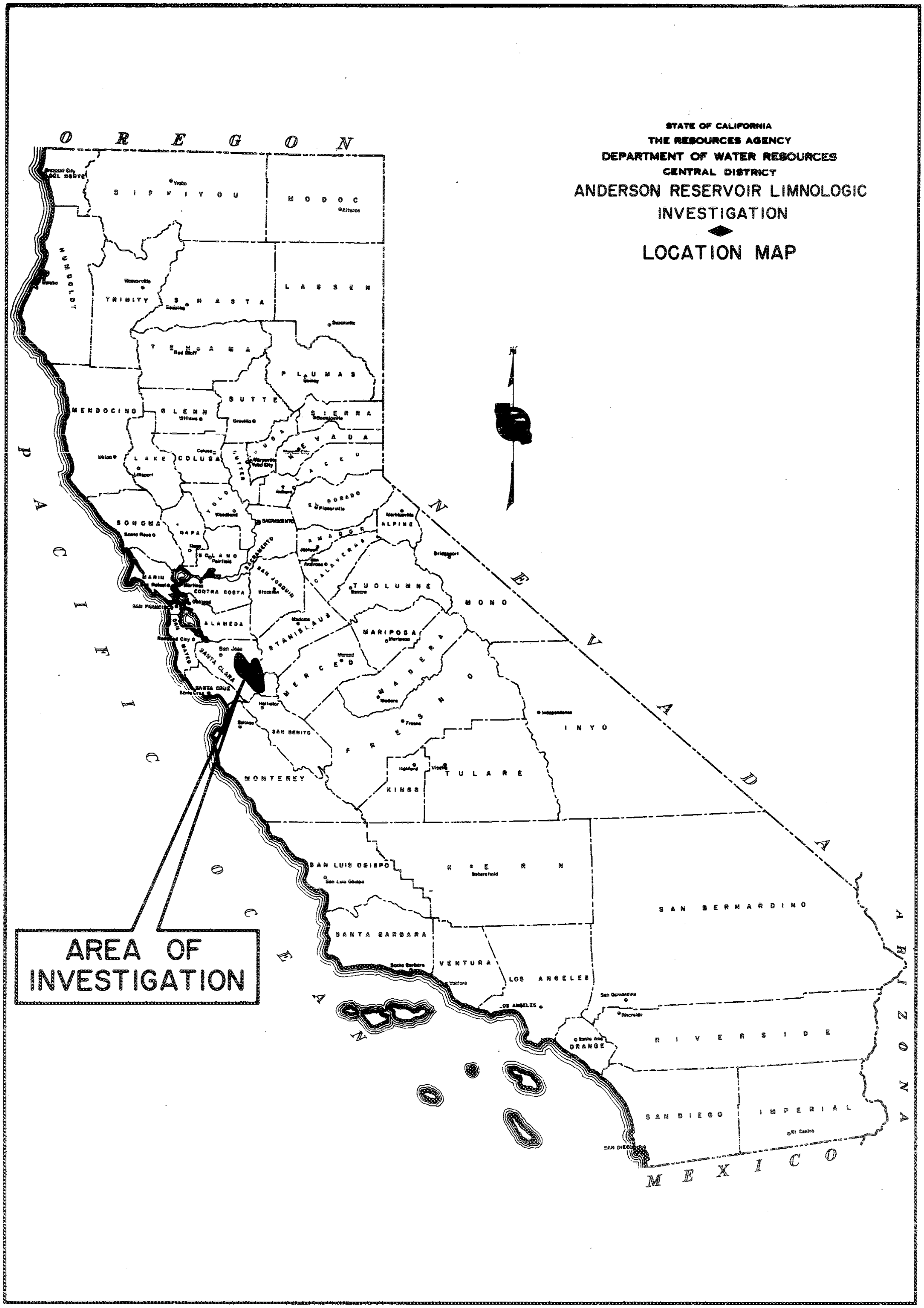
Anderson Reservoir is a man-made reservoir, built in 1950, and located on Coyote Creek at the same site that was recommended by Tibbetts and Kieffer in the first water resources master plan report prepared for the then Santa Clara Valley Water Conservation District, and published in March 1921. It is located below the confluence of Las Animas and Coyote Creeks and their several tributaries which drain the west flank of the Diablo Range. The watershed is rugged, has little timber, and is sparsely populated. Figures 1 and 2 show the location of the watershed.

Anderson Reservoir impounds water that would otherwise flow into San Francisco Bay and controls releases into percolation areas and streambeds during dry weather. The percolated water recharges the underground basin which has been the principal source of water for the Santa Clara Valley. Without the reservoir, over 80 percent of runoff, which occurs during the period November through March, would end up in San Francisco Bay.

Purpose and Scope of Investigation

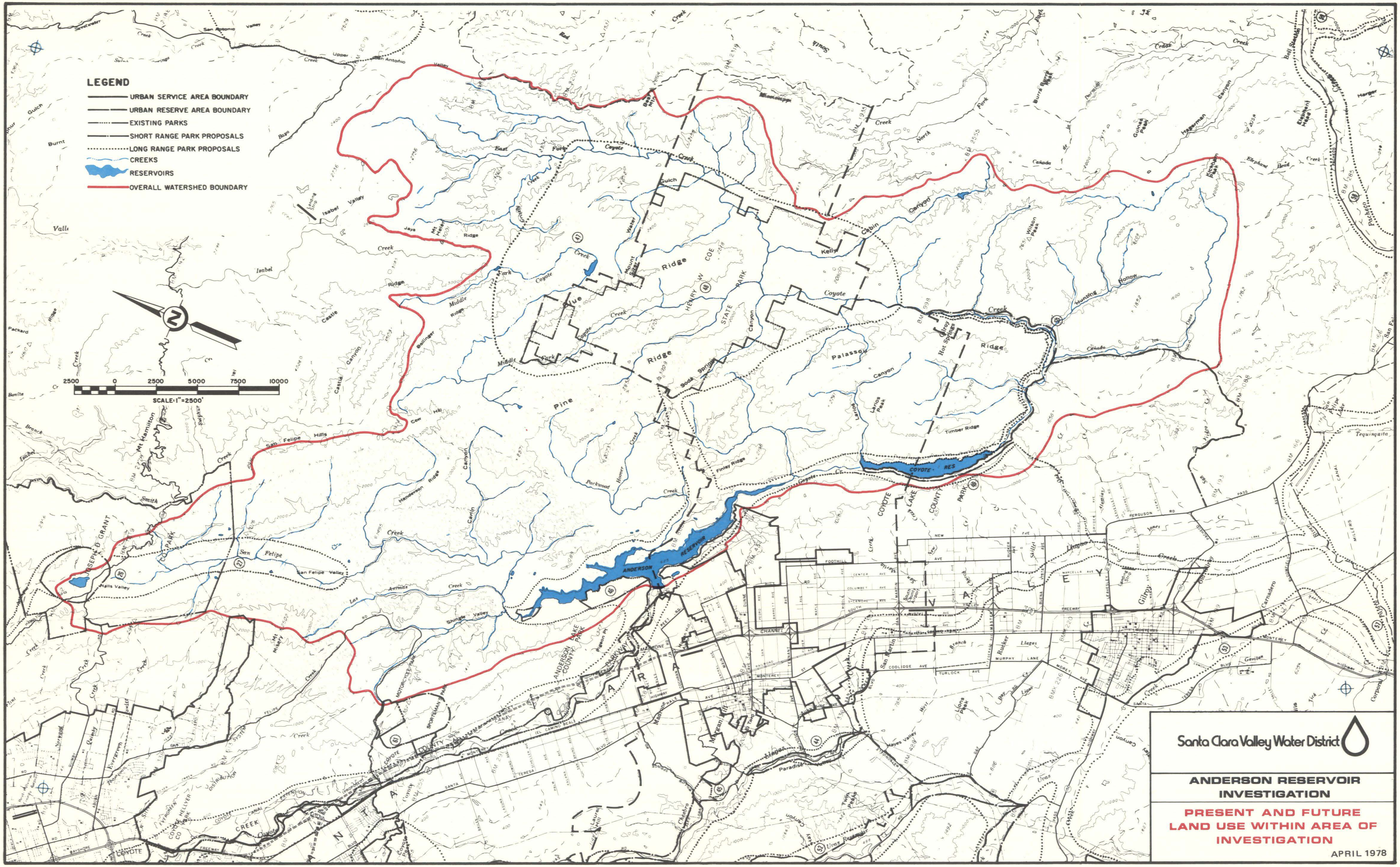
This report presents the results of a cooperative investigation made by the California Department of Water Resources and Santa Clara Valley Water District.

District staff had long ago recognized that data collected in the past on the District's reservoirs were insufficient to establish base line water quality characteristics and therefore they were unable to establish trends in these characteristics. To achieve a comprehensive and effective water management system, the District needed to be able to consider all factors impinging upon reservoirs, streams, and related watersheds through a well-developed system of water quality monitoring. After considering present and past information on all storage reservoirs, Anderson Reservoir was selected for the study because it constituted a case with representative problems contributed by newly urbanized areas.



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT
ANDERSON RESERVOIR LIMNOLOGIC
INVESTIGATION
◆
LOCATION MAP

FIGURE 1



Santa Clara Valley Water District

ANDERSON RESERVOIR INVESTIGATION

PRESENT AND FUTURE LAND USE WITHIN AREA OF INVESTIGATION

APRIL 1978

FIGURE 2

The Department of Water Resources (DWR) had a common interest in this significant body of water and agreed to undertake the joint study. The field work for the study was conducted during the period October 1974 through September 1975 and was carried out by both agencies.

The objectives of the joint investigation were:

1. To obtain current base line limnologic data for Anderson Reservoir.

2. To evaluate the overall biologic productivity of Anderson Reservoir.

The three major purposes for conducting the study were:

1. Provide information useful in evaluating the environmental effects of proposed and anticipated developments within the drainage basin.

2. Provide information for use in the management of Anderson Reservoir as a recreational asset and sports fishery.

3. Provide a basis for determining the need for a comprehensive study of resources and land uses of the drainage basin.

Data Collection

Field activities were conducted by crews composed of staff from the Department of Water Resources and Santa Clara Valley Water District.

These activities consisted of the following:

1. Collection of field data from Anderson Reservoir on six occasions. Concurrently, samples were also collected for laboratory analysis.

2. Collection of field data and laboratory samples from the major streams tributary to the reservoir on several occasions during winter and spring runoff.

Laboratory analyses, both mineral and biologic, were funded by the Department of Water Resources. These analyses were performed at the DWR's Bryte Laboratory.

Area of Investigation

The major physical features of the area include hills and ridges, stream-cut canyons and valleys, intermontane valleys and the man-made Anderson Reservoir. The combination of woodlands, chaparral and grasslands provide a varied coloration and texture when combined with the deep canyons, ridges and small level valleys.

The soils in the area are generally thin and bare rock is commonly exposed on the surface of steeper slopes. Deeper soil or organic-rich colluvium are present along stream drainages.

The Diablo Range is underlain by several major faults and numerous splinter faults which provide a potential for seismic activity. The steep terrain contributes to the potential for landslides.

Around the southwest portion of Anderson Reservoir are centered medium-density residential developments, which have been incorporated by the City of Morgan Hill. Some of these developments include sewage collection and treatment facilities; however, some subdivisions have individual sewage disposal systems which constitute a major concern since the reservoir receives heavy recreational and water-contact sports use and is a source of water supply.

The City of San Jose has also incorporated an undeveloped large area along the northern part of the reservoir. The remainder of the area of investigation is under the jurisdiction of Santa Clara County. The County has reserved about 1 836 hectares (4,537 acres) as park, of which about 154 hectares (380 acres) will be developed.

There is relatively easy access to the west shore of Anderson Reservoir. Cochran Road and East Dunne Avenue provide convenient off-ramps from Highway 101, South Valley Freeway. Cochran Road provides direct access to the dam area and to the County's boat-launching ramp. East Dunne Avenue serves chiefly the southwest residential areas and provides access to the east shore of the reservoir and to Henry Coe State Park by crossing the reservoir at its southern tip. In addition, East Main Avenue provides direct access from the center of the City of Morgan Hill.

CHAPTER III

PHYSICAL ENVIRONMENT

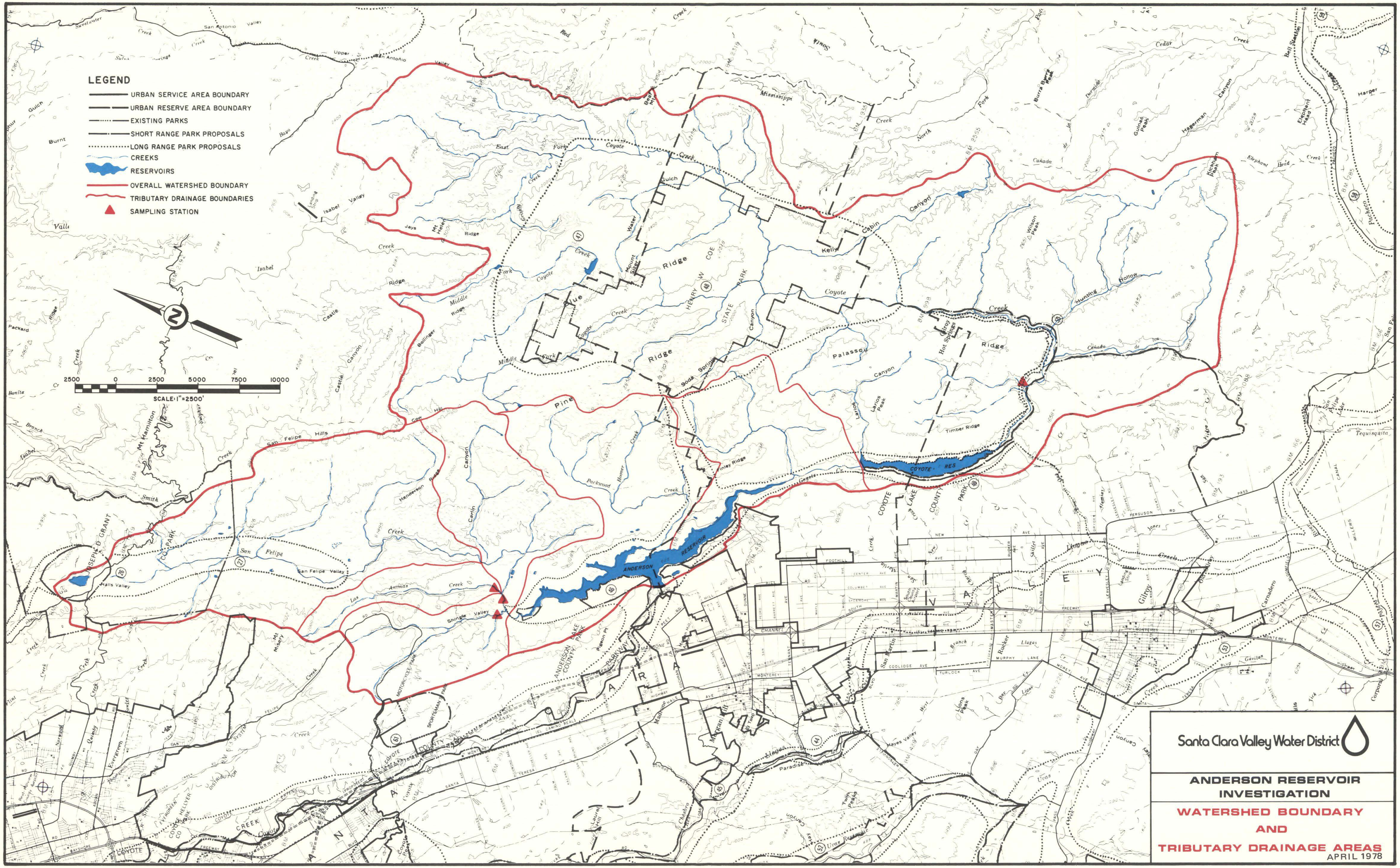
Watershed Characteristics

The drainage area upstream of Anderson Reservoir encompasses 3 055 hectares (7,549 acres) on the western slope of the central Diablo Range, as shown in Figure 3. Topography ranges from moderately rugged along the western portion adjacent to Coyote Valley and Llagas Basin to rugged in the higher eastern portion of the drainage. The drainage is characterized by northwesterly trending mountain ridges and V-cut streams. Occasional linear stream valleys occur along the streams where their channels widen. The principal drainage is Coyote Creek whose headwater originates in the eastern area of the drainage, then flows southeasterly before turning westerly where it picks up Canada de Los Osos, its major tributary. Then Coyote Creek flows northwesterly through Coyote Reservoir and into the southwesterly end of Anderson Reservoir. Las Animas Creek, another major tributary, flows into Anderson Reservoir at its northwesterly end. Another smaller tributary is Packwood Creek which enters the reservoir from the east.

The elevation of the drainage ranges from almost 915 metres (3,002 feet) in the upper watershed to 118 metres (387 feet) at the toe of Anderson Dam, from where Coyote Creek emerges from the Diablo Range into Coyote Valley.

Anderson Reservoir was formed by construction of the Leroy Anderson Dam which was completed in 1950 and in December of the same year commenced its storage.

The Dam is of rolled earth and rock fill type which provides a maximum storage capacity of 112.5 x 10^3 cubic metres (397.3 x 10^4 cubic feet), and a surface area of 502 hectares (1,240 acres) when full. The length of the reservoir is 12.5 kilometres (7.8 miles) and the minimum pool elevation is 132.6 metres (435 feet). The outlet facilities include a chute-type spillway. Additional statistical data on the dam, spillway, and inlet and outlet structures are presented in Table I.


LEGEND
URBAN SERVICE AREA BOUNDARY
URBAN RESERVE AREA BOUNDARY
EXISTING PARKS
SHORT RANGE PARK PROPOSALS
LONG RANGE PARK PROPOSALS
CREEKS
RESERVOIRS
OVERALL WATERSHED BOUNDARY
TRIBUTARY DRAINAGE BOUNDARIES
SAMPLING STATION
N
2500 0 2500 5000 7500 10000
SCALE: 1"=2500'
ANDERSON RESERVOIR
COYOTE RES
HENRY W. COE STATE PARK
COYOTE LAKE COUNTY PARK
ANDERSON LAKE COUNTY PARK
JOSEPH D. GRANT COUNTY PARK
Gilroy

Santa Clara Valley Water District

ANDERSON RESERVOIR INVESTIGATION

WATERSHED BOUNDARY AND TRIBUTARY DRAINAGE AREAS

APRIL 1978

FIGURE 3

Table I

Anderson Reservoir Dam and Appurtenances Statistics

	Metric	English
Dam crest elevation	195 m	640 ft
Dam crest length	422 m	1,385 ft
Dam crest width	12 m	39 ft
Dam base width	335 m	1,099 ft
Dam height above streambed	73 m	240 ft
Spillway weir length	58 m	190 ft
Spillway crest elevation	191 m	627 ft
Spillway capacity	679 m^3/s	24,000 ft^3/sec
Outlet pipe diameter	1.245 m	4 ft
Outlet pipe length	353 m	1,158 ft
Outlet invert elevation	131 m	430 ft

Geology

The northeastern one-half, or the upper one-half, of the drainage is underlain by bedrock of the Franciscan Complex. Bedrock consists predominantly of intensely folded, sheared and fractured beds of shale, sandstone, chert, and metavolcanics. These units have locally been intruded by serpentine which also exhibits intense shearing and fracturing. Unweathered bedrock exposures are usually confined to the stream channel areas, but in the areas above the stream channels, bedrock outcroppings are sparse and discontinuous. Large areas are mantled by weathered bedrock and residual soils to variable depths.

A northwesterly trending band of Cretaceous age sedimentary formation occurs in the central portion of the drainage from the Franciscan Complex contact to the eastern half of Coyote Reservoir and the southeastern end of Anderson Reservoir. The Cretaceous age formation consists of folded sandstone and shale. Occasional smaller units of younger Tertiary age similar sedimentary formations occur within the Cretaceous formation. Bedrock outcroppings of these formations are also sparse but the depth variability of the soil mantle is expected to be less than that of the Franciscan Complex.

The western portion of the drainage area is underlain by the Santa Clara Formation. This formation consists of gently folded, lightly consolidated to compacted sedimentary beds consisting of silt and claystones, sandstone, and conglomerate. This formation is usually mantled by a soil cover of variable depth but usually shallow. The Santa Clara Formation overlies the Franciscan Complex and serpentines which have been exposed locally by erosion along the western portion of Anderson Reservoir.

All the above formations within the watershed are highly susceptible to landsliding as exhibited by the occurrence of numerous old and recent landslides within these units. Sediment yields from the drainage is moderate to high.

Stream valleys in the drainage are filled by a relatively thin covering of unconsolidated alluvial deposits. These deposits occur along the floor of Anderson Reservoir, Coyote Reservoir, and along portions of Canada de Los Osos and Las Animas Creek.

The major structural geologic feature of the drainage is the northwesterly trending, active Calaveras fault which cuts through the drainage area through Coyote Reservoir and the southwestern tip of Anderson Reservoir. Other smaller faults within the drainage include the Silver Creek, Coyote Creek, and Madrone Springs faults, all of which trend northwesterly. The Madrone Springs fault forms the contact between the Franciscan Complex and the younger Cretaceous and Tertiary age formations.

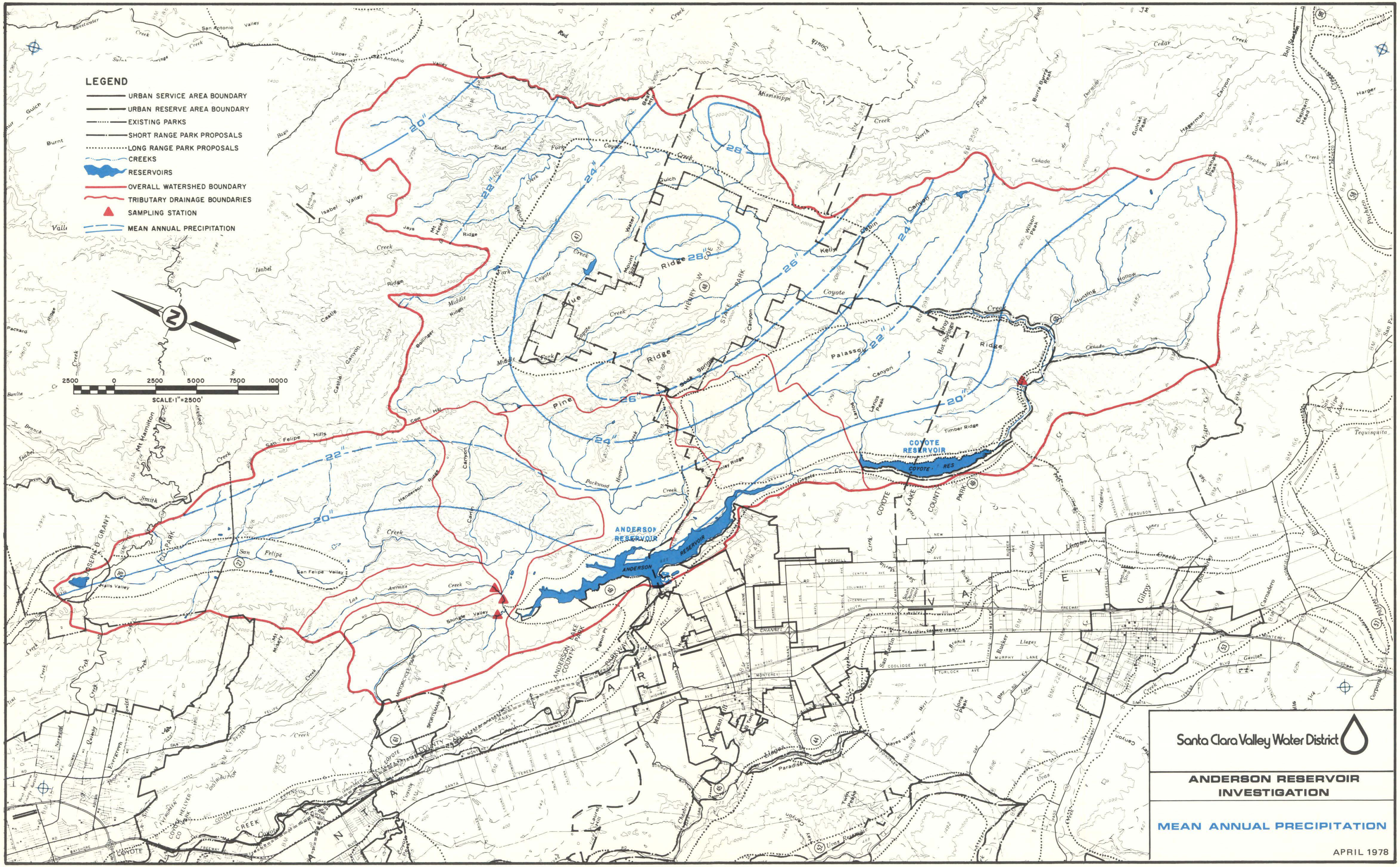
Hydrology

The pattern of precipitation in the area of investigation is represented on Figure 4, "Lines of Equal Mean Annual Precipitation". There are five precipitation stations within the Anderson Reservoir watershed which provided the basis for the preparation of the Mean Annual Precipitation in this area. The statistical summaries of annual rainfall for these stations -- Coe Park, Coyote Reservoir, Jackson Ranch, Anderson Dam, and Morgan Hill -- are included in Appendix A.

The average rainfall for all the years of record for these five rainfall stations range from 49.3 cm (19.4 in.) at Jackson Ranch to 63.5 cm (25.0 in.) in Morgan Hill (Oak Flat).

The monthly evaporation rates at Anderson Reservoir for the period January 1966 through December 1975 are presented in Appendix B. The total evaporation for the period of the study, October 1974 through September 1975 was 992 mm (39.1 in.).

Four stream-gaging stations are located in the Anderson Reservoir watershed. Three represent the major streams flowing directly into the reservoir (Las Animas Creek at O'Connell Ranch - Station #56, Packwood Creek at Jackson Ranch - Station #57 and Coyote River below Coyote Dam). Records



Santa Clara Valley Water District

ANDERSON RESERVOIR INVESTIGATION

MEAN ANNUAL PRECIPITATION

APRIL 1978

FIGURE 4

for these three streamflow stations and for USGS Station #11-1698 on Coyote Creek, 7.4 km (4.6 mi.) upstream from Coyote Dam are included in Appendix C. Anderson and Coyote Reservoirs' storage are presented in Appendix D. These charts also reflect the mode of operation of these reservoirs.

Releases from Anderson Reservoir are mostly used to supply water to both on-stream and off-stream ground water recharge facilities.

The relationships of Anderson Reservoir to the overall District's water system are schematically illustrated in Figure 5.

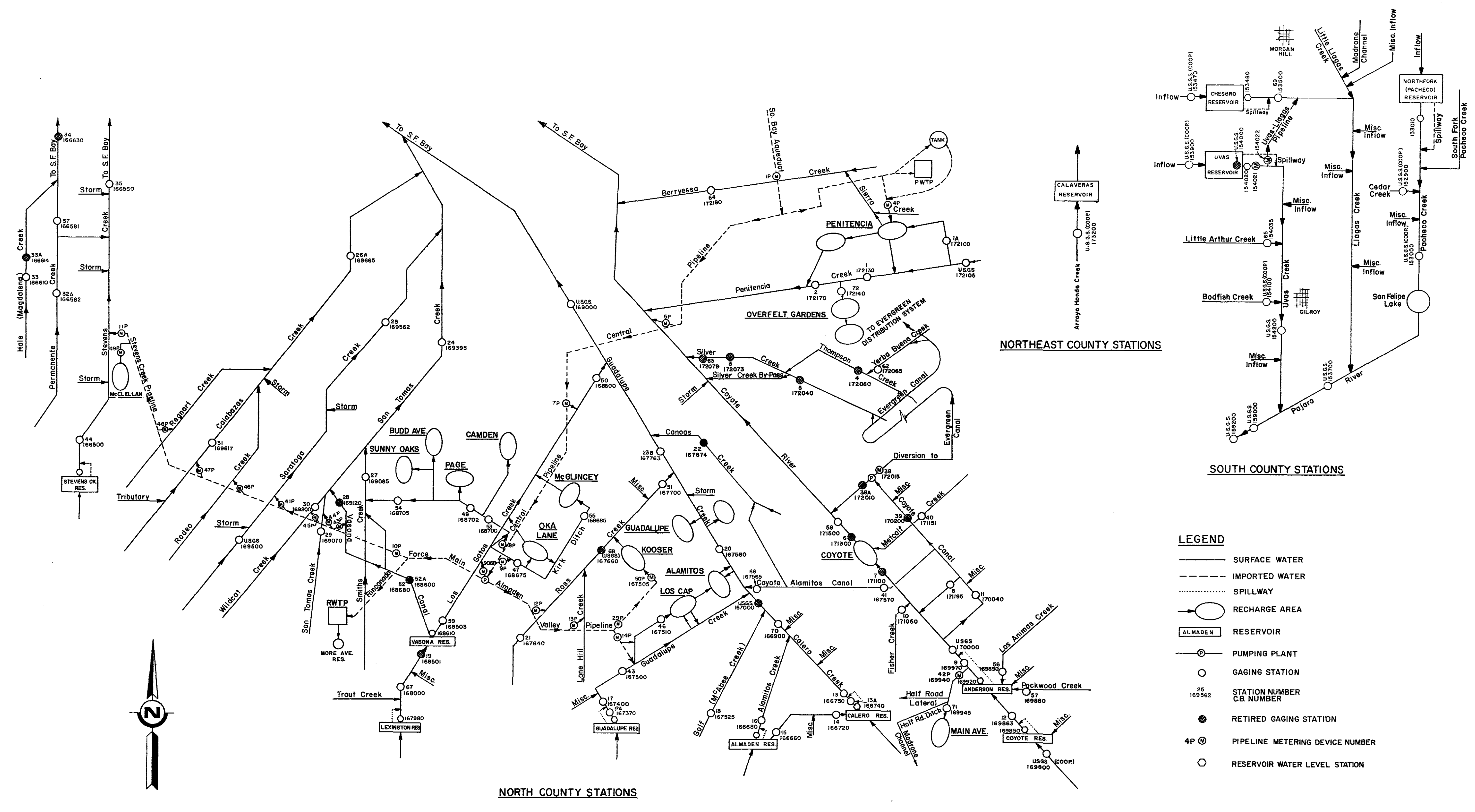
Water Quality

Data on the quality of water of Anderson Reservoir collected prior to this investigation are limited. Samples were collected at the release vault and at the dam and analyzed for minerals, nutrients and metals. Summaries of these data are included in Appendix E.

No stream water quality data were collected in the reservoir watershed prior to the commencement of this study. However, since natural streamflows result from direct runoff, the resulting mineral quality reflects the type and solubility of the formation and soil minerals present, the chemical activity of the water as it absorbs carbon dioxide from the atmosphere and soil, and the contact time of water and the minerals; it also is dependent on temperature.

During the rainy season the dissolved mineral content is expected to be low; however, turbidity and sediment transport is probably high. During the summer and fall months, when virtually no rainfall occurs, the streamflows within the drainage area are sustained by hot mineral springs water and by ground water as effluent seepage. Mineral content of ground water is usually higher than that of surface runoff as ground water has percolated through the soil. Consequently, the mineral content at low flows is expected to be higher than at high flows.

Depending upon the geologic formations which underlie the individual tributaries the mineral quality may vary from one tributary to another; however, large variation in the Coyote Creek drainage is not expected as geologic and chemical characteristics of the formations do not vary much.



REFER TO TRACING FOR LATEST REVISION

REV.	DESCRIPTION	SUB.	APPR.
1	Corrected Station Numbers. 6-10-76		R.E.P.
2	Revised Drawing. 10-21-76		R.E.P.
3	Added Madrone Channel		R.E.P.

REFERENCE INFORMATION AND NOTES

DATE
5-7-75
DESIGN

DRAWN
R.J. FITZGERALD
CHECKED
R.E.P.

Santa Clara Valley Water District

ENGINEERING CERTIFICATION
PROJECT ENGINEER
DIVISION ENGINEER R.C.E. NO. 21937

ENGINEERING APPROVAL
HEAD, OPERATIONS BRANCH R.C.E. NO. 13780

SCHEMATIC DIAGRAM FOR S.C.V. WATER DISTRICT SURFACE WATER MEASUREMENT STATIONS

SCALE
NA
SHEET
1 OF 1

As the streams enter the reservoir, waters from the various subdrainages and of the high flows and low flows are mixed. Due to this mixing the quality of water below the reservoir is not subject to wide variations.

The overall quality of the water is within the limits of drinking water standards for the parameters analyzed; however, it is hard (average hardness: 170 mg/l) and exhibits an average TDS of 300 mg/l.

Analyses of waters of Coyote Creek below Anderson Reservoir are generally a calcium-magnesium bicarbonate type. Total dissolved solids (TDS) usually range from 170 to 250 mg/l with extreme concentrations up to 484 mg/l noted. Hardness is generally moderate but on occasion the water is very hard.

Waters draining areas underlain by serpentine are expected to be a magnesium-bicarbonate type while those draining the other formations within the drainage are expected to be a calcium bicarbonate or calcium-magnesium bicarbonate type.

Several springs occur within the upstream drainage. These include Coe Spring (8S/4E-33N) and Madrone Spring (9S/4E-10K) on Soda Springs Canyon, a tributary to Coyote Creek 13 kilometres (8 miles) upstream of the confluence of Canada de Los Osos. A sample from each of these springs was analyzed by the USGS in 1963. Analysis indicated water from Coe Spring to be a sodium chloride type of low mineral content. The TDS indicated was 43 mg/l. The sample from Madrone Spring was indicated to be a calcium bicarbonate type with a TDS of 1190 mg/l, boron content of 4.1 mg/l, and calcium carbonate hardness of 895 mg/l. The sample from Gilroy Hot Springs was indicated to be a sodium-magnesium bicarbonate type with a TDS of 1 290 mg/l, boron content of 17 mg/l, and calcium carbonate hardness of 585 mg/l. Waters from these springs are suspected to be a mix of meteoric water and connate water (entrapped formation water, usually degraded due to a high mineral content). Due to the low discharge of these springs, spring waters would have virtually no effect on the overall water quality of the drainage system. Their influence might be only local during low flows of the tributary streams.

Climate

The climate of the Anderson Reservoir watershed is generally mild, characterized by dry summers with moderate to high daytime temperatures and cool nights, and wet winters with moderate temperatures.

More than 80 percent of precipitation occurs during the period November through March.

Average annual temperatures at the U. S. Weather Bureau Station at Gilroy for the last 10 years have ranged from 14.4°C (57.9°F) in 1971 to 15.4°C (59.7°F) in 1974. The average monthly temperatures at this station for the period from October 1974 through September 1975 ranged from 8.4°C (47.1°F) in December 1974 to 21.2°C (70.2°F) in July and September 1975.

Monthly average temperatures recorded at the Gilroy Station are shown in Table II.

Table II

Monthly Average Temperatures at Gilroy for the Period of Study

Month	Temperature °C	Temperature °F
October 1974	17.9	64.2
November 1974	12.2	54.0
December 1974	8.4	47.1
January 1975	8.6	47.5
February 1975	10.6	51.1
March 1975	11.3	52.3
April 1975	11.8	53.2
May 1975	17.8	64.0
June 1975	19.5	67.1
July 1975	21.2	70.2
August 1975	21.1	70.0
September 1975	21.2	70.2

CHAPTER IV

FIELD AND LABORATORY METHODS

Many parameters were determined or observed during the course of the investigation. In most instances the techniques and equipment used to measure the desired variables were standard and commonly used by other investigators.

Field Determinations

Certain water quality parameters are of such a nature that they require in situ (in place) determinations. Other parameters undergo change soon after samples are collected and require determinations in the field.

Reservoir - In Situ

Transparency determinations were made using a secchi disk of 20 centimetres diameter with alternate black and white quadrants suspended on a metallic cloth tape. The disappearance and reappearance depths were noted and the average of the two depths was recorded.

Light transmittance was measured by lowering an upward-facing photocell within a waterproof housing to various depths and reading an ammeter which was connected by conductor cable to the cell. The cell was covered with a lens of material similar to milk glass, but no specific wave length filters were used. The equipment used consisted of a readout unit, which was fabricated by D. B. Perkins of the Department of Water Resources, plus a sea-cell unit manufactured by Kahl Scientific Company.*

The first reading was made with the sea-cell held horizontally in air above all reflecting objects in and around the boat. Readings were then made at one metre intervals to a depth where the photometer reading was less than one percent of the reading in air. All readings were later converted to a percentage of the reading in air and a calculation was made of the depth to which one percent of the light penetrated -- the one percent light level.

Measurements of dissolved oxygen (DO), pH, and specific conductance were made with a multi-parameter electronic instrument. The instrument used was a Montedoro-Whitney ECL 500. Measurements at any depth were possible since the sensor head was equipped with 100 metres of conductor cable. Temperature was measured by the ECL 500 or a Yellowsprings Telethermometer, which utilizes a thermistor on a long conductor cable.

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* Reference to equipment names is not intended as an endorsement by either DWR or SCVWD.

Reservoir - Collected Samples

All samples were collected with a Kemmerer sampler which had a capacity of 3000 cubic centimetres.

Temperature was determined on collected samples by use of an ASTM mercury thermometer, which was mounted inside the lucite-walled Kemmerer sampler. The thermometer was scribed with 0.1 degree Celsius (°C) divisions. These temperatures helped verify the validity of the thermistor readings and also gave assurance that the sample had been collected at the intended depth.

The pH determinations were made using a Hellige color comparator. The indicators used were bromthymol blue (6.0-7.6), phenol red (6.8-8.4) and thymol purple (7.6-9.2).

Conductivity, more commonly called electrical conductivity (EC), was measured with a Beckman Solubridge with 2K cell and was reported as micromhos (umhos) per centimetre at 25°C. The International Systems unit for conductivity is microsiemens (uS) per centimetre, and this unit is equivalent to the umho.

Dissolved oxygen (DO) analyses were made with a field kit, using the Alsterberg (azide) modification of the Winkler method. Dry reagents in powder pillows were used, followed by titration with a standard thiosulfate solution dispensed from an automatic leveling burette.

Laboratory Samples

Many of the parameters studied in the investigation involved analysis requiring specialized techniques or equipment not suitable for use in the field. Samples for these analyses were taken to the Department of Water Resources' Bryte Laboratory.

Phytoplankton

At each station a series of phytoplankton (suspended algae) samples was collected at one metre intervals from the surface to a depth one metre below the one percent light level. These samples were then composited. A portion of the composited water was placed in a 2-ounce (59 ml) bottle and preserved with Lugol's solution.

At the laboratory, aliquots from the samples were placed in special settling chambers, and the algae was allowed to settle for several hours. The settled samples were then placed on the stage of an inverted microscope, and the organisms contained in several microscope fields were counted and identified to genus. Several representative organisms of each genus were measured by use of a micrometer eyepiece to obtain their approximate external dimensions. Reference to a chart of standard volumes for various geometrical shapes (cylinders, spheres, etc.) was used to provide estimates of the volume of the average organism.

Laboratory results were reported in two ways: (1) Number of organisms per millilitre and (2) Concentration of organisms in cubic standard units per millilitre (CSU/ml). Multiplication by 0.008 converts CSU/ml to milligrams per litre (mg/l).

Zooplankton

Zooplankton (the very small, weakly swimming animals) were sampled by means of a 0.27 metre (0.9 foot) diameter plankton sampler with a No. 20 silk bolting cloth net. The net was lowered 15, 25 or 30 metres and then pulled to the surface at an approximate rate of 15 metres per minute. Any zooplankters clinging to the inside of the net were washed to the bottom cup by pouring water on the net from the outside. The total contents of the cup were then transferred to a bottle containing a few drops of rose bengal. After 5 minutes enough formalin (37 percent Formaldehyde) was added to the sample bottle to make a 5 percent solution of formalin.

At the laboratory an inverted microscope with 50 or 100 magnification was used to identify the zooplankters to major taxonomic group only (copepods, cladocerans, etc.). In addition, aliquots of each sample were filtered through a preweighed Whatman GF/C glass fiber filter. The filters were then dried at 103°C for one hour and reweighed. Finally the dried filters were ignited in a muffle furnace (560°C for 15 minutes), cooled and weighed again. The results were reported as organisms per millilitre, as well as mg/l of suspended and volatile solids.

Benthic Organisms

Attempts to collect samples of bottom organisms (benthos) by use of an Eckman dredge proved nonproductive.

Chlorophyll Fluorescence

As stated earlier, most of the samples for phytoplankton analysis were composited from several depths. Although this is an economical way to develop standing crop figures, it does not indicate the depths where algal concentration was greatest. In order to determine relative concentration values, a portion of the water from each depth sampled was analyzed for chlorophyll fluorescence.

In vivo fluorometry is a test which is based on the fluorescence of the chlorophyll pigment contained in algal cells. As water samples were collected, they were placed in an insulated chest. On completion of the work, cool water collected from deep in the reservoir was poured around the sample bottles in the ice chest. Later the same day bottles were removed from the chest and allowed to warm to room temperature.

The instrument used in the tests was a Model 111 Turner fluorometer. This instrument had been adapted to obtain maximum sensitivity to chlorophyll by installing the appropriate filters (Corning CS 5-60 primary and a Corning CS 2-60 secondary), the correct light sources, and a red-photomultiplier tube. Only the ten range light control slot was used. Where necessary, samples were diluted with distilled water so that readings would always fall within the ten range.

In vivo chlorophyll values should only be used in general comparisons because there are three major problems in trying to convert these values to algal concentrations. These problems are: (1) failure to differentiate between viable chlorophyll and pheophytin (the inactive chlorophyll found in the organic detritus of dead algae and zooplankton fecal matter); (2) the variability in amounts and types of chlorophyll within algal cells caused by different growth stages and algal species; and (3) difference in values from different instruments.

Minerals

Samples for chemical analysis were collected with a Kemmerer sampler and placed in plastic bottles. The samples for nutrient analysis were iced and delivered to the DWR Bryte Laboratory within 24 hours of collection time. In some instances, nutrient samples were frozen where longer storage was required.

Water samples were also taken to the Department's laboratory for other mineral analysis. Constituents analyzed included the Department's "standard mineral" (calcium, magnesium, hardness, sodium, potassium, alkalinity, carbonate, bicarbonate, sulfate, chloride, boron, total dissolved solids, and electrical conductivity, nutrients (nitrogen series and phosphorus) and on one occasion, selected heavy metals. All analytical procedures were in accordance with methods outlined in the 13th edition of Standard Methods (American Public Health Association, 1971).

Stream Sampling

The items covered in this chapter to this point have been oriented to the work done on the reservoir. There were, however, many samples collected from four stations located on the streams which are tributary to either Anderson or Coyote Reservoir.

Most of the Coyote Creek samples were collected by Mr. Russell L. Mendoza who lives near the sampling station. He was not asked to make any field determinations.

The usual field determinations were made in most instances when Las Animas and Shingle Valley Creeks were visited. The methods used were essentially the same as those discussed earlier under "Collected Samples".

Samples from the streams were handled similarly to that discussed under "Minerals". The laboratory analyses were also the same as those discussed in that section.

CHAPTER V

PHYSICAL AND CHEMICAL CHARACTERISTICS

In order to assess the limnologic conditions existing in Anderson Reservoir, field data and samples were collected periodically from a total of 12 sampling stations on the reservoir and its tributaries. A listing of these stations with their identifying numbers or letters appears in Table III. The reservoir stations are shown in Figure 6 and are identified by the last portion of the investigation station designation.

The frequency of visits to the reservoir sampling stations varied considerably, with some being sampled once and others six times. The major effort was directed to three stations -- one near the center of the reservoir and one in each of the two major arms. It was believed that data from these stations would be representative of most of the lake. The number of analyses from each station is shown in Table III.

The Department of Water Resources' station numbers in the table are a combination of characters indicating hydrographic area and type of water body, plus latitude and longitude for the reservoir stations. In explanation, consider the number E6R71021373 which applies to the station near the dam. The components of the number and their derivation are:

E6 - Santa Clara Valley
R - Reservoir

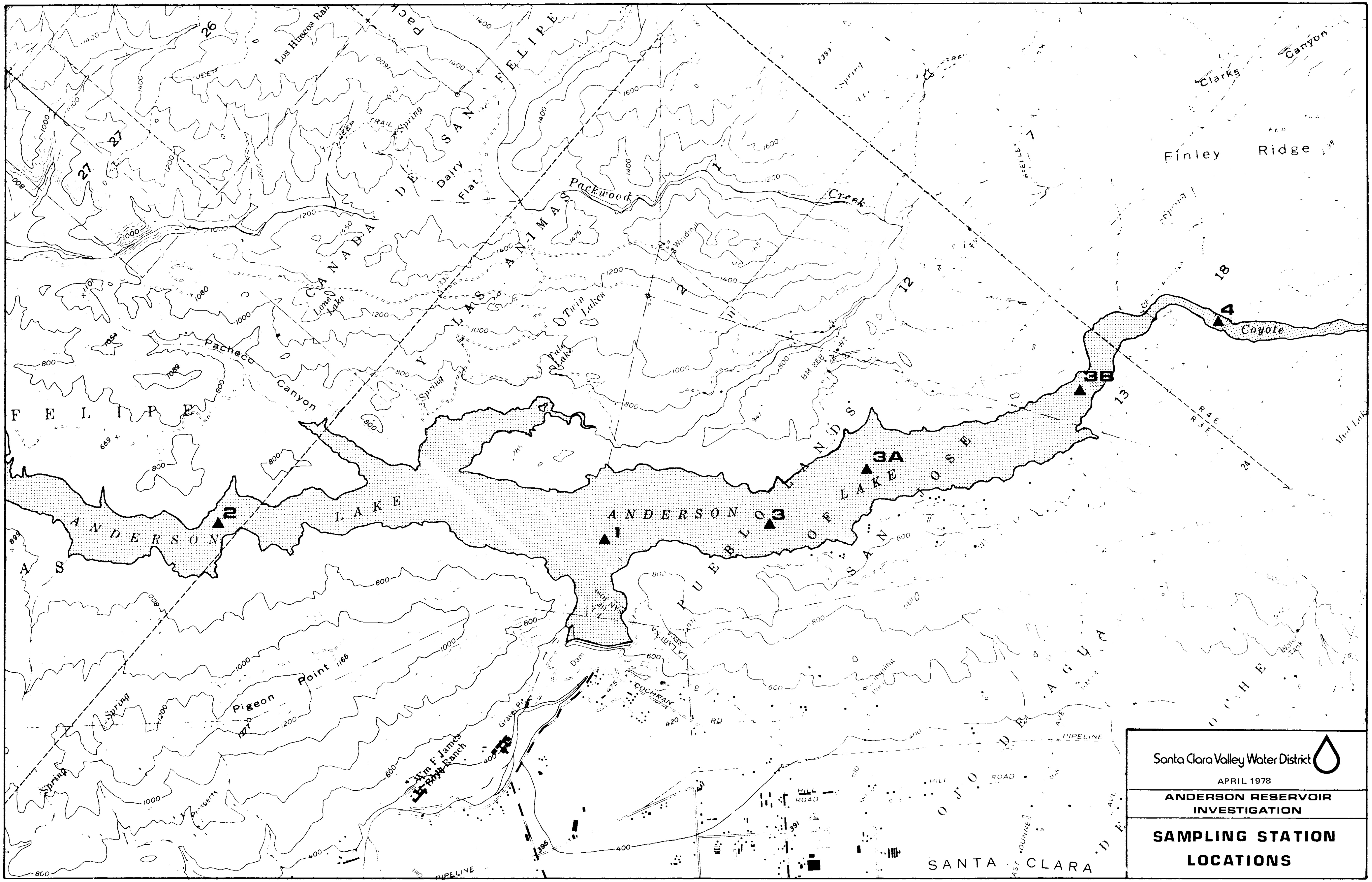
7102 - 37° 10.2' Latitude
1373 - 121° 37.3' Longitude

The first two components of the stream station numbers again refer to the Santa Clara Valley Basin. The remaining numbers relate to stream networks within the Basin.

Tabulations of the data generated during the investigation are presented in Appendix F, Analyses of Surface Water, Appendix G, Water Quality Data Summary, and Appendix H, Field Determinations. The data included in these tabulations cover many limnologic aspects and parameters.

Field-Determined Parameters, Reservoir

The values obtained in this study as well as the importance of those parameters which were determined in the field are discussed in this section.



Santa Clara Valley Water District

APRIL 1978

ANDERSON RESERVOIR INVESTIGATION

SAMPLING STATION LOCATIONS

Figure 6

Table III

Investigation Sampling Stations

Investigation Station Designation	Department of Water Resources Number	Station Name	Number of Analyses Mineral	Number of Analyses Phytoplankton
		Anderson Reservoir		
AR-1	E6R71021373	Center	13	8
AR-2	E6R71131385	North Arm	8	7
AR-3	E6R70981367	South Arm near Dam	1	
AR-3A	E6R70961362	South Arm near Marina	3	3
AR-3B	E6R70961353	South Arm near Bridge	4	4
AR-4	E6R70901347	South of Bridge		1
		Coyote Reservoir		
CR-1	E6R70491318	At Boat Ramp Pier		1
CR-2	E6R70601324	Near Boat Ramp	2	1
		Tributary Streams		
CC	E6430000	Coyote Creek near Gilroy	19	
LA	E6426901	Las Animas Creek above San Felipe Creek	7	
SF	E6426401	Las Animas Creek above Shingle Valley Creek	16	
SV	E6426201	Shingle Valley Creek at Mouth	10	

Temperature and Stratification

Water temperature is very important in limnology since it affects rates of both biologic activity and chemical reactions, and also affects solubility of oxygen in water. The differences in water density that accompany differences in temperature also produce the stratification of deeper lakes and reservoirs.

Vertical profiles of water temperatures were determined by collecting data from a number of depths at the three major stations. Data from this work are tabulated in Appendix H and presented graphically in Figures 7, 8 and 9.

Variations in air temperature, along with variations in wind and cloud conditions, produce the year-to-year differences of the thermal stratification patterns in a reservoir. The average air temperature at Anderson Reservoir was 10°C (50°F) during the 4-week period ending March 24, 1975. Very strong winds occurred during much of the period of March 25-28, 1975, with velocities as high as 161 kilometres per hour (100 miles per hour) reported at nearby Mount Hamilton. It is probable that the reservoir underwent considerable mixing during that period as indicated by water temperatures near the dam, which varied from 12.0°C (53.6°F) at the surface to 10.6°C (51.1°F) at 55 metres (180 feet) on April 8, 1975. Evidence of slight stratification can be seen in the data for May 6, 1975. Data for May 28, 1975, show definite stratification with a metalimnion (zone of greatest temperature change) existing between depths of 7 and 10 metres (23 and 33 feet). The bottom of the epilimnion (warm upper zone above the metalimnion) had lowered to 8 metres (26 feet) on July 1, 1975, and to 12 metres (30 feet) on September 16, 1975.

Dissolved Oxygen

Another parameter which is highly important to all aquatic organisms is dissolved oxygen (DO). Most aquatic organisms have an optimal range of DO and a minimum level below which they will die.

Vertical profiles similar to those for temperature were also determined for DO although at less frequent depth intervals in most instances. Data for DO profiles are also presented in Appendix H and plotted in Figures 7, 8 and 9.

DO conditions were generally good during the period of investigation. Values greater than 7.0 mg/l existed in the upper 15 metres (49 feet) during the first 3 times the reservoir was sampled and in the upper 8 metres (26 feet) during the last 3 visits. There was no DO in the lower 26 metres (85 feet) on October 30, 1974, but there was always some DO in most of the hypolimnion (zone beneath the metalimnion where temperatures are lowest) during the other visits to the reservoir.

DISSOLVED OXYGEN—TEMPERATURE PROFILES

ANDERSON RESERVOIR, CENTER   EGR71021373   (AR-1)

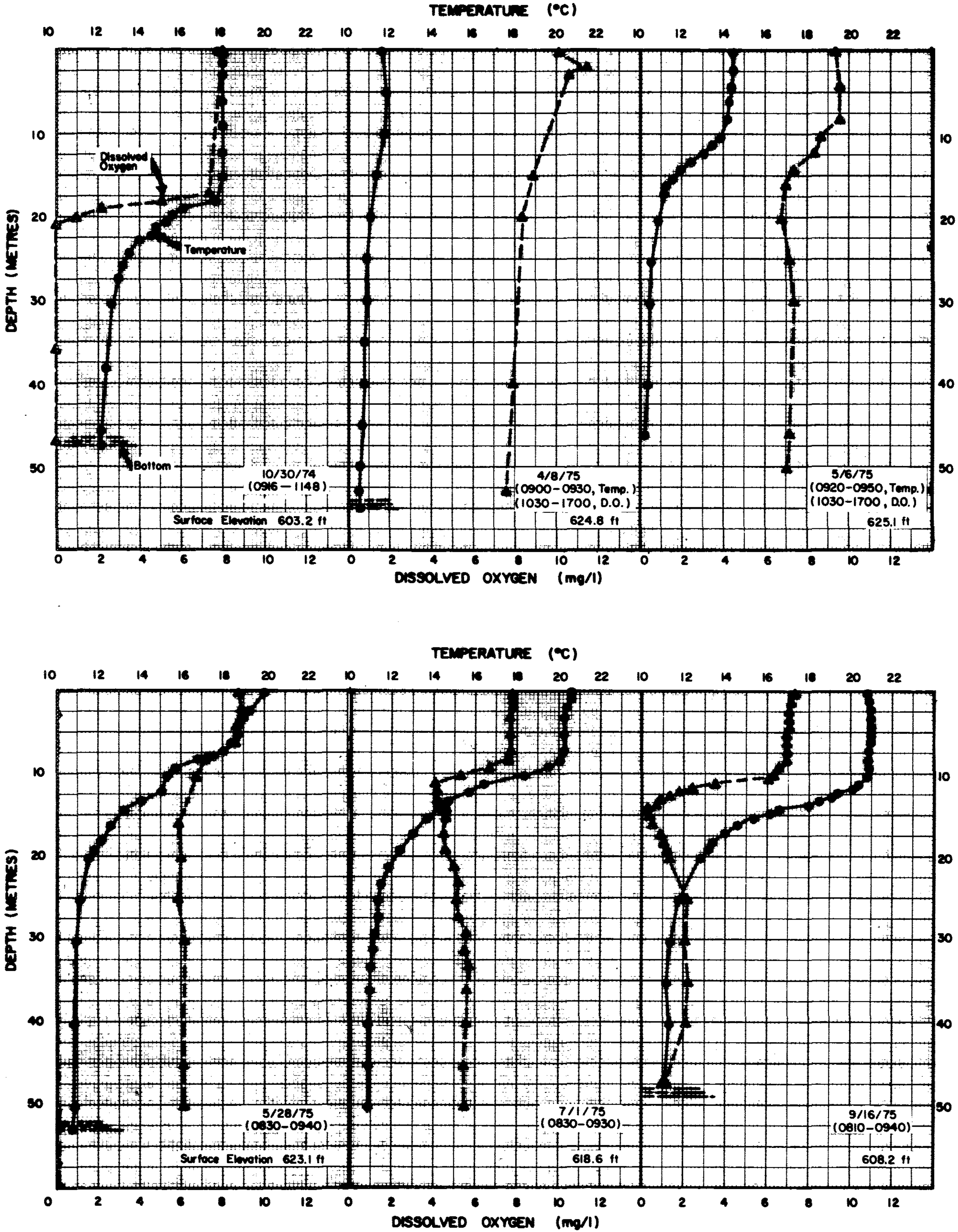


FIGURE 7

DISSOLVED OXYGEN—TEMPERATURE PROFILES

ANDERSON RESERVOIR, NORTH-LAS ANIMAS CREEK ARM E6R71131365 (AR-2)

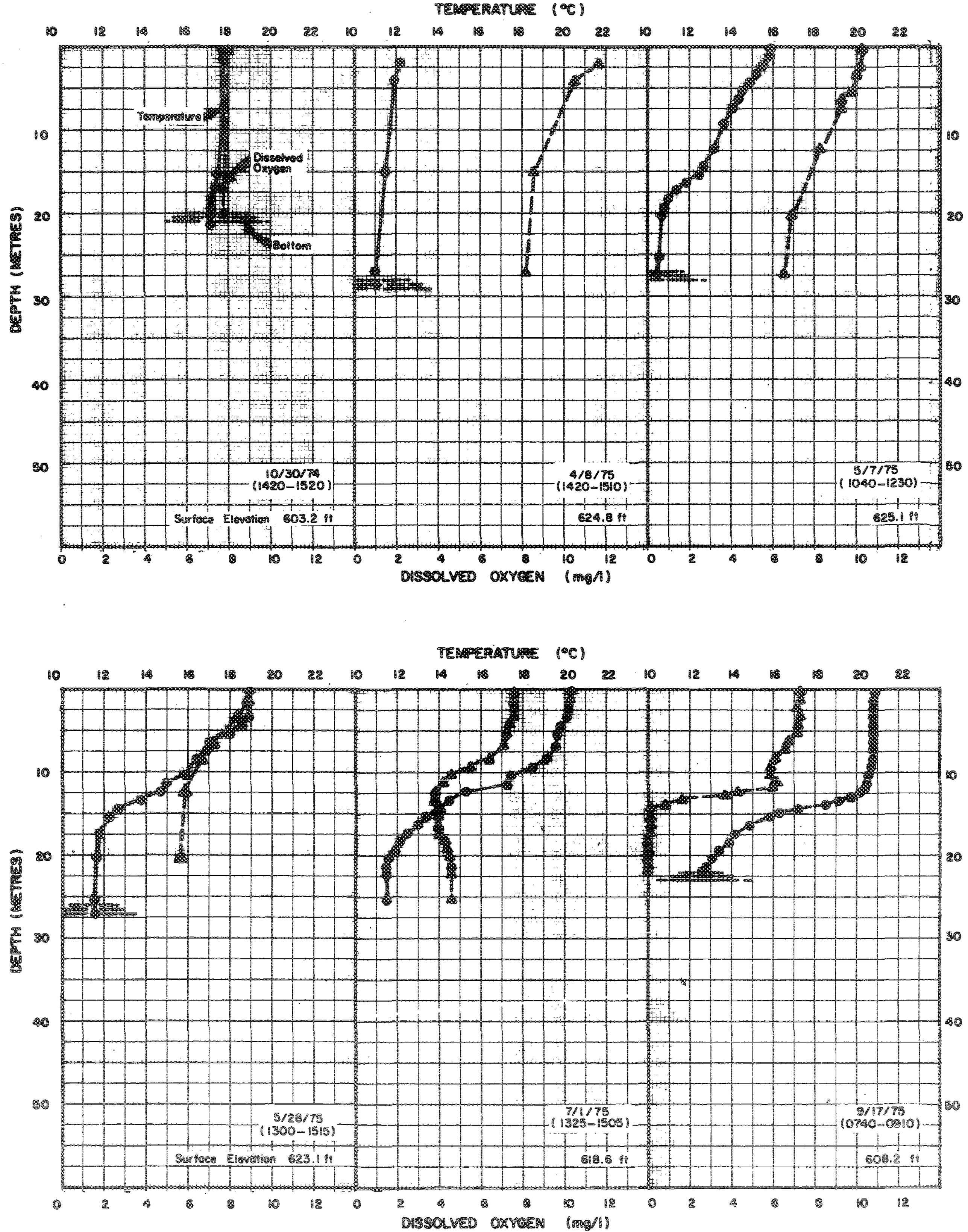


FIGURE 8

DISSOLVED OXYGEN — TEMPERATURE PROFILES

ANDERSON RESERVOIR, SOUTH-COYOTE CREEK ARM
E6R70961367 (AR-3)
E6R70961362 (AR-3A)
E6R70921353 (AR-3B)

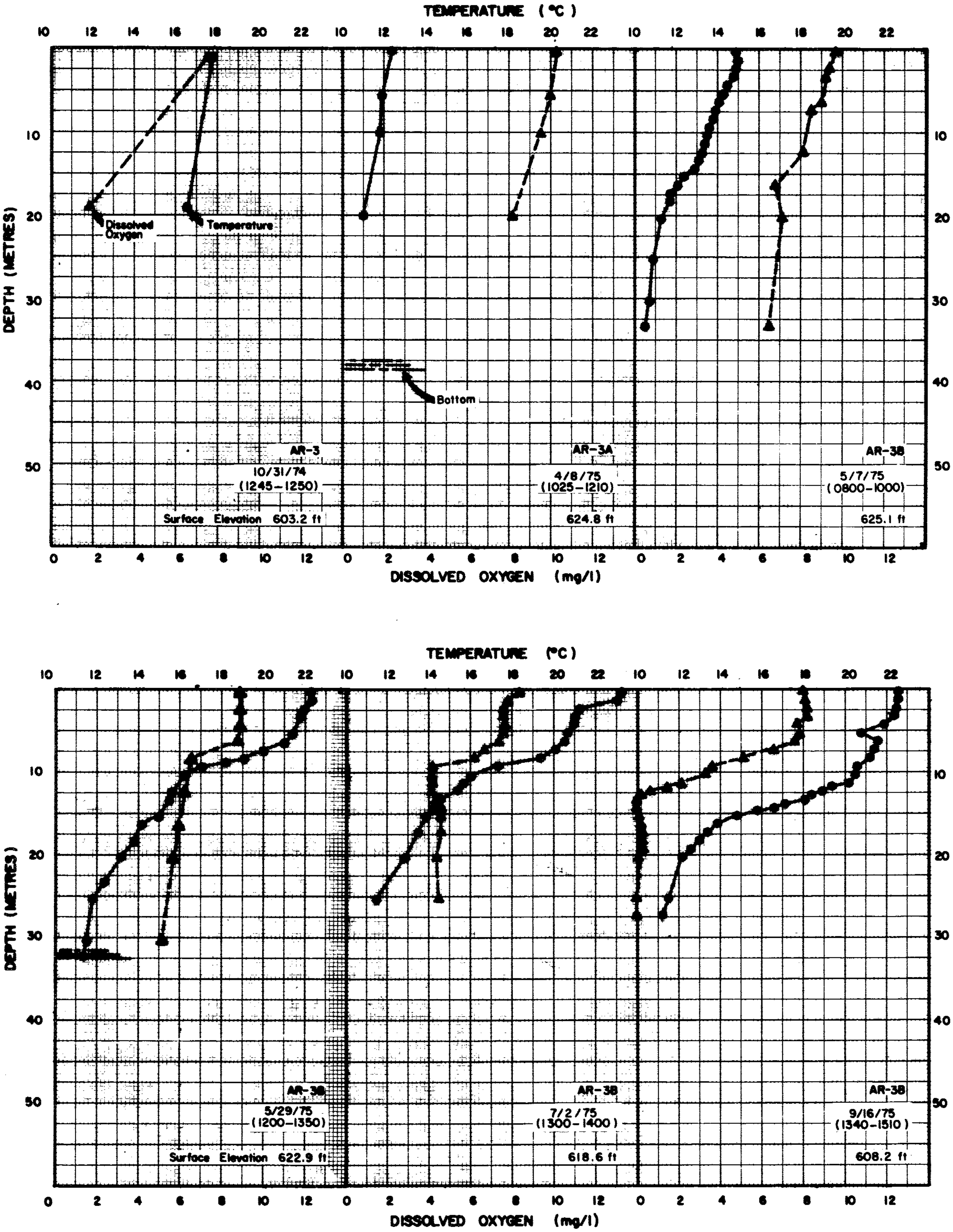


FIGURE 9

Although DO concentrations in the hypolimnion are low at times and even become anaerobic, the concentrations in the epilimnion should be suitable for the maintenance of a satisfactory ecologic community. With proper management that community can include a warm-water sports fishery.

Dissolved Oxygen Depletion Rate

The DO data from this study were used to calculate the rate at which oxygen was depleted. Only data from the part of the reservoir below the epilimnion were used in these calculations, since that part of the reservoir obtains no further oxygen from the atmosphere during the stagnation period.

The period considered began on May 7, 1975, the time when stratification was beginning. Since this was almost 6 weeks after the strong winds of late March, it was assumed that the DO depletion would be primarily caused by respiration of settling phytoplankton, bacteria, zooplankton, and other aquatic fauna. It should, therefore, be indicative of the primary productivity occurring in the reservoir.

The calculated values are presented in Table IV in two different ways: (1) as a depletion rate for the total column of water below the epilimnion; and (2) as a rate for the average cubic metre of the column.

Light Transmittance

The extent to which light is transmitted downward from the water surface is very important in determining the depths at which the photosynthetic organisms (phytoplankton and higher plants which make their own food) can function effectively. Algal physiologists generally agree that the net production of algal material seldom occurs below the level at which incident light is reduced to one percent (the one percent light level). The depth at which net production is zero -- where algae consume as much organic material as they produce -- has been designated the "compensation depth".

Light transmittance measurements were made at the three major stations. Data from these measurements were converted to percent transmittance and plotted on graphs in Appendix I, Percent Light Transmittance Graphs. The one percent light levels for each visit are also presented in Table V.

Table IV

DO Depletion at Center Station (AR-1)

Date	Phytoplankton Concentration in Photic Zone (mg/l)	DO Depletion Rate $g/m^2/day$	DO Depletion Rate $g/m^3/day$
4/9/75	4.9	--	--
5/6/75	2.1	--	--
5/29/75	0.6	2.4	0.055
7/1/75	1.4	1.7	0.040
9/16/75	0.5	1.6	0.040
5/6-9/16/75	--	1.6	0.043

Table V

Light Transmittance and Transparency

Station No.:	AR-1			AR-2			AR-3A & 3B		
Date	Secchi Depth (m)	1% Light Level (m)	1% Light Level / Secchi	Secchi Depth (m)	1% Light Level (m)	1% Light Level / Secchi	Secchi Depth (m)	1% Light Level (m)	1% Light Level / Secchi
10/30/74	2.1	7.6	3.6	1.3	5.1	3.9	--	--	--
4/8-9/75	1.3	4.6	3.5	1.1	3.9	3.6	1.3	4.4	3.4
5/6/75	1.7	6.0	3.5	1.9	6.3	3.3	1.4	5.3	3.8
5/28/75	--	7.4	--	--	6.8	--	--	6.8	--
5/29/75	--	7.4	--	--	--	--	--	--	--
6/30/75	2.3	8.0	3.5	1.5	6.2	4.1	1.6	6.9	4.3
9/16/75	2.7	10.0	3.7	1.8	7.4	4.1	2.1	8.2	3.9
Average values	210	7.3	3.6	1.5	6.0	3.8	1.6	6.3	3.8

In all but one instance, the one percent light level was deeper at the center station than it was in either arm. This was probably due to the nearness to the shoreline of these stations so that more inorganic turbidity from wave wash was able to reach them. The value for this parameter was least in April, two weeks after a period of strong mixing, but then steadily increased into September.

Transparency

Secchi disk readings, as a measure of transparency, give another indication of light penetration into the water. The simplicity of the measurement avoids many of the difficulties which arise during use of a photometer to determine light transmittance; however, there are problems in use of the secchi disk. Such problems include departure from 12 noon (angle of light source), time of year, cloudiness, surface disturbances, reflective surface films and the observer's visual competence.

Secchi disk readings followed a pattern of seasonal change in 1975 which was similar to that of light transmittance.

In order to make possible the use of the less expensive secchi disk to estimate the one percent light level, a correlation was made between each pair of observed values. The correlation which is the one percent light level divided by the secchi depth, is also presented in Table V. The ratio was most constant at the center station where the average value was 3.6 and the range was 3.5 to 3.7.

pH Values

The two methods of pH measurement used during the investigation were color comparison and electronic sensing. The values obtained were in generally good agreement. The pH values obtained by use of the color comparator ranged from 7.1 to 8.5 and were never less than 7.5 any time the percent saturation for DO was greater than 50 percent. The pH was always greater than 8.0 when DO was near saturation.

Specific Conductance

The extent to which an electrical current passes through water increases as the concentration of dissolved ionic materials increases; therefore, a measurement of specific conductance or electrical conductivity

(EC) of a water gives an indication of dissolved solids content. Because of this relationship, the results of EC determinations are discussed with total dissolved solids.

Nutrients

Nitrogen and phosphorus are very important to the photosynthetic aquatic organisms and are frequently termed "nutrients".

Sources

Included in the sources of nutrients to a lake are soils and rocks of the basin, bottom materials of the lake, precipitation on the lake and its watershed, fecal material from animals in the basin, and wastes from human activities. Tributary streams are the means of transport for the majority of the nutrients entering most lakes, and unless significant quantities of wastes are discharged to the streams, most of these nutrients originate with basin runoff.

Anderson Reservoir receives runoff from several tributary streams. Most of the runoff enters through Las Animas Creek and Coyote Creek with the latter accounting for more than three-fourths of the total inflow.

One sewage treatment plant is operated in the watershed. This plant treats the domestic sewage from United Technology Corporation, which is located in the Shingle Valley drainage area. The effluent from this treatment plant is sprayed on a nearby hillside where runoff is impounded by a system of dikes and the collected water is resprayed. Most of the industrial wastes from this company are hauled out of the basin.

The sewage produced by the residents in the basin is disposed of through septic tanks and leach fields. The extent to which these systems release nutrients to surface waters is dependent on ground slope, soil type and possibility for deep percolation. Within the basin several homesites have steep slopes, and most of the soils in the basin are underlain with geologic formations which do not allow deep percolation. It is probable, therefore, that a significant fraction of nutrients in the basin's sewage enters surface waters.

Nitrogen fixation can also be a significant source of combined nitrogen in a lake. This fixation can result from the presence of certain species of bacteria or blue-green algae. Bacteria were not studied in this investigation. Blue-green algae were seldom found in significant quantities throughout most of the lake; however, in April 1975, a rather heavy bloom of Aphanizomenon was observed in the most upstream portion of the Coyote Creek Arm, and a similar bloom occurred in Coyote Reservoir at the same time. No attempt has been made to determine the amount of combined nitrogen which may have been contributed by nitrogen fixation, but it is possible that the amount was large.

Concentrations in Inflow

Analyses of samples from the tributary streams have been summarized and are presented in Table VI.

Table VI

Statistical Summary of Nutrient Concentrations (mg/l)

	Nitrate Nitrogen			Ortho Phosphate Phosphorus		
Station:	SF	SV	CC	SF	SV	CC
Maximum	1.00	7.50	1.40	0.06	0.17	0.02
Minimum	0.21	0.34	0.02	0.03	0.02	0.00
Median	0.54	0.85	0.045	0.04	0.125	0.01
Mean	0.41	2.15	0.22	0.044	0.11	0.008
No. of Samples:	12	6	12	9	6	12

Concentrations of nitrates and ortho phosphate were much higher from Station "SF", Las Animas Creek and Station "SV", Shingle Valley Creek, than they were from Station "CC", Coyote Creek. The geologic formations of the Coyote Creek watershed differ from the formations in the watershed of the other two streams and some differences in water quality can be expected in the streams. The nutrient values for Coyote Creek, however, are much lower than those for other streams whose watersheds have similar geologic makeup, such as Arroyo Valle.

Arroyo Valle drains a watershed which adjoins to the Coyote Creek watershed on the north and geologic formations in the two watersheds are quite similar. Six samples from Arroyo Valle were analyzed for nutrients during 1972 and 1973. The average values of these results were 0.48 mg/l for nitrate-nitrogen and 0.015 mg/l for ortho phosphate-phosphorus.

Samples from Coyote Creek were given different treatment than those from Las Animas and Shingle Valley Creeks. Nearly all the Coyote Creek samples were collected in soft plastic containers, while the samples from the other creeks were collected in hard polyethylene plastic bottles. All of the Coyote Creek samples were frozen and held in storage for several months before analysis, while many of the samples from the other streams were not frozen; or, if frozen, they were held for shorter periods.

In order to better establish the nutrient concentrations of Coyote Creek, samples should be collected from the creek during the next rainy season. Laboratory approved containers should be used and storage time should be reduced.

Availability and Critical Levels

The importance of nutrient availability to the photosynthetic organisms of a lake is such that many attempts have been made to determine the minimum concentrations of nitrogen and phosphorus which may lead to overproduction of phytoplankton. Because of the difficulty of accurately determining the amounts of nutrients available in a lake, and because of the many factors other than nutrients which also influence such overproduction of algae, conclusions concerning such minima have been quite varied. Most established values include total nitrogen levels considerably less than one mg/l and phosphorus levels at or near 0.01 mg/l.

The minimum concentrations mentioned above concern the overproduction of algae. Lesser concentrations of nutrients should therefore, be sufficient to develop a level of algal production adequate as a food base for a satisfactory sport fishery.

Concentrations in Reservoir

Samples collected at two different times from three stations in Anderson Reservoir were analyzed to determine nutrient levels.

Evaluation of the data is complicated by the many factors involved in sample collection, in laboratory analysis, and in selection of criteria for determining biologic significance. Selected sampling depths should be pertinent to nutrient availability in the photic zone (region of net productivity) during the major growing season of May through October. Nutrients incorporated in the algae dispersed in the sample, however, may not be completely extracted. On the other hand, a sample from a layer with high phytoplankton populations, may yield analytic results much higher than the average of the water column, even with only partial extraction of nutrients in the algal mass. Seasonal pulses of algal growth add complications through greater or lesser incorporation of nutrients in algal bodies. Although little photosynthetic activity is likely in the hypolimnion, except in very clear lakes, the decomposition of settled algae and other organic particles produces nutrient concentrations in that zone which are often higher than in the rest of the lake.

Complications described above probably had their least effect during the sampling of April 9, 1975. That date was about 2 weeks after the very windy period in late March which was discussed on page 34.

The laboratory analyses of samples collected that day are presented in Table VII. The results of all nutrient analyses are tabulated in Appendix G, Water Quality Data Summary.

Concentrations of dissolved nitrogen and orthophosphate phosphorus were generally higher at 20 m (66 ft) than at 10 m (33 ft). This is probably because these nutrients were incorporated in algae at the 10-metre depth (33 ft) and were not measured by the analysis. This is indicated by the fact that the algal concentrations as shown in Table VII were much greater at the shallower depth.

If other conditions were satisfactory for algal growth, a concentration of orthophosphate phosphorus of 0.02 mg/l would be sufficient for moderate to high levels of algal production. A concentration of 0.49 mg/l total dissolved nitrogen should be sufficient for a moderate level of algal production.

Other Dissolved Minerals

The minerals dissolved in a body of water are important both to aquatic organisms living in the water and to persons withdrawing the water for some beneficial use. Those minerals whose dissolved concentrations are

Table VII

Total Dissolved Nutrients of Samples
Collected April 9, 1975 (mg/l)

Station:	AR-1		AR-2		AR-3A	
Sample Depth:	10m	20m	10m	20m	10m	20m
NO_3 (N)	0.07	0.16	0.09	0.20	0.08	0.16
NH_3 (N)	0.03	0.03	0.03	0.04	0.01	0.02
Dissolved Organic N. (N)	0.2	0.2	0.3	0.3	0.3	0.2
Total Dissolved N. (N)	0.30	0.39	0.42	0.54	0.39	0.38
Total Organic N. (N)	0.3	0.3	0.3	0.3	0.4	0.3
Total Nitrogen (N)	0.40	0.49	0.42	0.54	0.49	0.48
Orthophosphate Phosphorus (P)	0.01	0.02	0.00	0.02	0.01	0.02
Algal Concentration	1.4	0.2	3.0	0.8	1.3	0.2

usually the highest (sodium, calcium, chloride, bicarbonate, etc.) are of less concern limnologically than are those termed nutrients. Determination of specific concentrations of these more abundant minerals was not emphasized in this investigation. In a few instances, "standard mineral" analyses, as discussed in Chapter IV, were made, giving fairly complete coverage to these various minerals.

More frequently, partial mineral analyses were made which included total hardness (calcium and magnesium), alkalinity (carbonate and bicarbonate), and specific conductance or electrical conductivity (EC). Observation of comparative changes in the few more frequently analyzed items, along with the occasional "standard minerals", provides a fairly comprehensive picture of all the various mineral constituents for the period of the investigation. These analyses are tabulated in Appendix F, Analyses of Surface Waters.

Total Dissolved Solids

The total dissolved solids (TDS) content in water can be determined by evaporating a filtered sample to dryness and weighing the mineral matter that remains. Because of the time involved in this analysis, the correlation between TDS and EC is frequently used to advantage. The simple EC analysis can provide a good approximation of TDS values and can be used to easily compare differences in the mineral content of samples from different depths, different stations, or different times.

During the investigation, 26 samples received laboratory analysis, and EC values ranged from 406 to 350 micromhos (umhos) with a median of 360. Since all of the values were within 10 percent of the mean, there was apparently little change in total dissolved minerals during the period of investigation. These EC values are quite similar to those of Lake Berryessa, Clear Lake, and other lakes and reservoirs fed by drainage from the Coast Range. They are roughly three to four times the EC values commonly existing in Lake Almanor and Lake Oroville which are fed by drainage from the Sierra-Nevada Mountains.

A factor for converting Anderson Reservoir EC values to TDS was calculated as 0.58. Since only eight TDS values were available for use in the calculation, the factor can be considered only approximate.

Hardness

The mean value of 27 samples analyzed for total hardness is 153 mg/l, an intermediate value. The total hardness content of the water, if withdrawn or released from Anderson Reservoir for domestic use, would be rated "moderately hard". Furthermore, much of the hardness could be removed by boiling because of the predominance of the bicarbonate ion among the anions.

Alkalinity (Bicarbonate)

The mean bicarbonate value of the 27 samples analyzed for alkalinity is 167 mg/l. Correlation with the mean EC gives a percent reactance value for bicarbonate of about 75, indicating that approximately three-fourths of the negative ions in the water are bicarbonate ions.

Other Mineral Constituents and Metals

A total of eight standard mineral analyses were run during the investigation. Data from these analyses are presented in Appendix F. The sulfate values, which varied from 34 to 41 mg/l indicate a level sufficient to produce significant concentrations of hydrogen sulfide whenever anaerobic conditions exist.

Also included in Appendix F are data from the analysis of six samples for the dissolved metals copper, iron, manganese and zinc. The samples were collected at 10 and 20 metres (33 and 66 feet) just after the 1975 spring overturn.

The only heavy metals concentration of possible significance was the 0.46 mg/l of zinc at Station 3A in the South Arm at 20 metres depth. Although some test fish have been killed in concentrations of about that level, they were usually the most susceptible growth stages of cold water fish and in much softer waters (less calcium and magnesium) than Anderson Reservoir water. As hardness increases the toxicity of zinc is reduced considerably. Those warmwater fishes which have been tested have shown greater tolerance to zinc. 1/

Coyote Reservoir Results

Coyote Reservoir, located immediately upstream of Anderson Reservoir, provides a substantial portion of the inflow to Anderson Reservoir. This inflow can cause significant limnological changes in Anderson Reservoir. For this reason, knowledge of limnological conditions in Coyote Reservoir may indicate future limnological changes in Anderson Reservoir.

Samples, therefore, were collected from Coyote Reservoir for mineral analysis and a vertical profile of field-determined parameters was made on July 3, 1975. The work was done at a single sampling location (Station CR-2) about one-half mile northeasterly of the boat ramp. The data are presented in Appendixes F, G, H and I.

The reservoir, on the above date, was in a stratified condition with a metalimnion from 8.5 to 11.5 m (27.9 to 37.7 ft), whereas on July 1, 1975, the metalimnion at Station AR-1 in Anderson Reservoir was located between 9.5 to 13.5 m (31.2 to 44.3 ft).

Dissolved oxygen in the hypolimnion at Station CR-2 varied from 0.6 to 2.0 mg/l. Two days earlier, the DO at AR-1 had ranged from 4.2 to 5.7 mg/l in the hypolimnion. The higher degree of DO depletion at CR-2 probably resulted from the large bloom of the blue-green alga, Aphanizomenon, which occurred in Coyote Reservoir in April 1975.

The pH at CR-2 was slightly lower than at AR-1.

1/ See "Water Quality Criteria", Second Edition, Published in 1963, by the California Water Quality Control Board.

The secchi disk reading and one percent light level were 2.9 m and 9.4 m (9.5 and 30.8 ft), respectively, at CR-2 while the values for these parameters were 2.3 m and 8.0 m (7.5 and 26.2 ft) at AR-1.

Nutrient samples were not collected at Station CR-2. Specific electrical conductance was 316 umhos in the epilimnion at CR-2, while it was 370 umhos in the epilimnion at AR-1. Most of the individual mineral constituents were similarly lower at CR-2.

CHAPTER VI

BIOLOGIC CHARACTERISTICS

The aquatic organisms which inhabit a lake are especially important to the in-place use of the lake. The makeup of the overall biota that develop in a body of water is determined to a large extent by the types and amounts of plants which grow there.

Photosynthetic Organisms

Aquatic organisms capable of producing food through photosynthesis support, either directly or indirectly, nearly all the remaining organisms living in most lakes. The overall biologic productivity of a lake is therefore highly dependent on the photosynthetic populations, which include both phytoplankton and higher order plants.

Phytoplankton

The term phytoplankton implies that the members of the group are suspended plant organisms whose swimming capabilities are not sufficient for them to move against water currents. The term is commonly applied only to those suspended organisms capable of photosynthesis; i.e., algae, and is not applied to non-photosynthetic bacteria.

As discussed earlier (page 38), nearly all algal production occurs above the depth where transmitted light has been reduced to one percent of the light at the surface. This portion of a water body is called the photic zone. Because algal productivity occurs mainly in that zone, phytoplankton samples were collected at one metre intervals from the surface to one metre below the one percent light level and composited into a single sample for laboratory analysis.

Since the stations in the arms were subject to greater fluctuations of the one percent light level due to turbidity from wave wash, the sampling depths for these stations were based on the sampling depth at the center station. This was to include in the sample those algae which might be below the photic zone only because of temporary turbidity conditions.

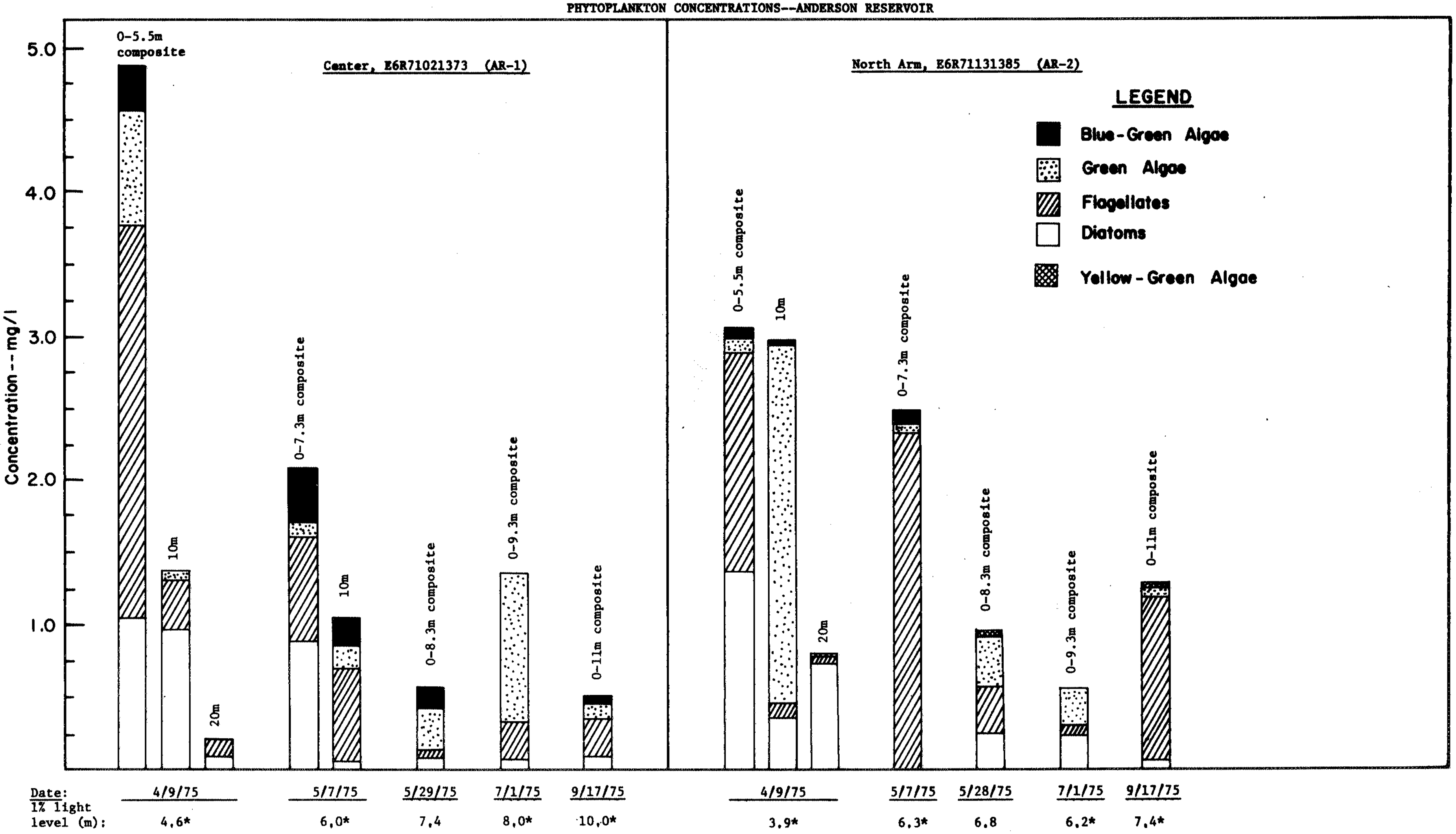
Phytoplankton analysis for this investigation included count and identification of organisms to genus, as well as a volumetric concentration for each genus. Although the major genus is reported individually, the values for the other genera are totaled together according to the major algae group to which they belong (blue-green, green, flagellates, diatoms and yellow-green). These data are tabulated in Appendix G. Bar-graphs of the total concentration of the 5 algal groups are presented in Figures 10 and 11. The data for the phytoplankton in the photic zone are presented in Table VIII, Statistical Summary of Photic Zone Algal Concentrations.

The data in bar-graphs and in Table VIII, indicate that significant amounts of blue-green algae and green algae were seldom found in the major portions of the lake. As mentioned earlier, there was one instance, April 9, 1975, when very large concentrations of blue-green algae were reported in the most upstream portion of the south arm. Visual observations at that time showed most of the surface to be covered with mats of algae in the most upstream sector of that arm. Analysis of a sample from the downstream end of these mats showed Aphanizomenon, a blue-green alga which often forms surface mats, made up 30 percent of the total algal concentration.

The extent to which the algae originated in Anderson Reservoir is not clear; however, the only discharge from Coyote Reservoir at that time was flowing over the spillway. On April 29, 1975, a sample collected at the Coyote Reservoir boat ramp contained a heavy concentration, 20 mg/l, of Aphanizomenon. Since this alga frequently collects near the surface, it is quite possible that a significant portion of the Aphanizomenon found in Anderson Reservoir on April 9, 1975, may have been discharged from Coyote Reservoir over the spillway.

Table VIII also shows that the flagellates were generally the most predominant group in the photic zone and were highly predominant in the stations in the two arms of the reservoir. The green algae, generally smaller than the other algae, and the Diatoms were intermediate in concentration between the predominant flagellates and minority blue-greens and yellow-greens.

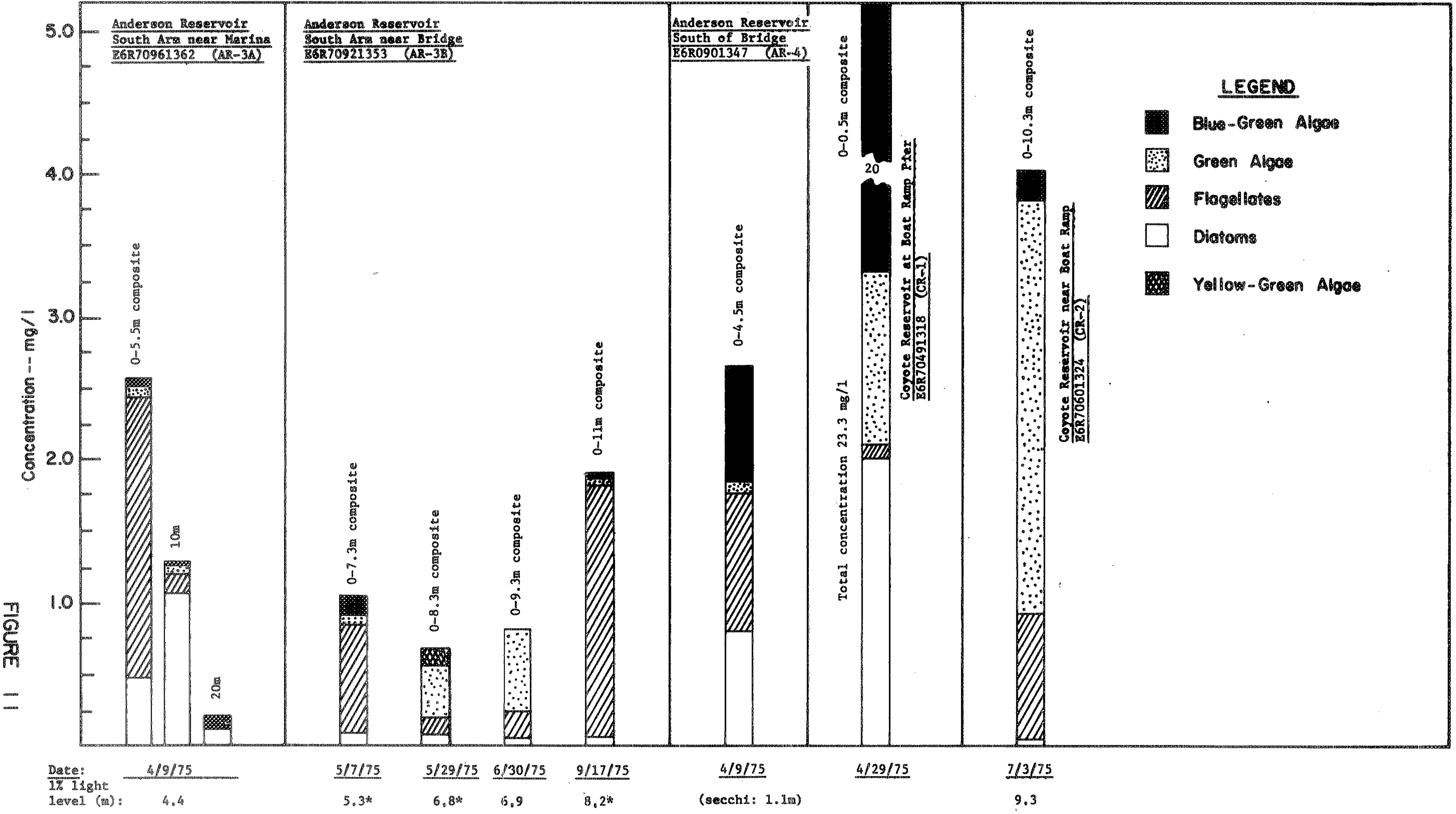
The mean concentration of phytoplankton in the photic zone showed a seasonal variation. The greatest concentration at all three stations occurred on April 9, 1975. The concentrations at the center station then underwent a decrease through the end of May. The concentration increased on July 1, 1975, and then dropped off again. The pattern was a little different in the reservoir arms with a steady decrease in concentration through July 1 and then a significant increase by September 17, 1975.



*Data taken from previous day.

FIGURE 10

PHYTOPLANKTON CONCENTRATIONS--ANDERSON AND COYOTE RESERVOIRS



*Data taken from previous day.

FIGURE 11

TABLE VIII

Statistical Summary of Photic Zone Algal Concentrations (mg/l)

	Blue-Green	Green	Flagellates	Diatoms
STATION AR-1				
Maximum	0.41	1.04	2.64	1.12
Minimum	0.00	0.12	0.05	0.05
Median	0.14	0.29	0.27	0.09
Mean	0.18	0.48	0.78	0.45
Mean as Percent of Total	10	25	41	24
STATION AR-2				
Maximum	0.12	0.35	2.32	1.36
Minimum	0.00	0.06	0.05	0.00
Median	0.00	0.09	1.12	0.21
Mean	0.03	0.16	1.07	0.37
Mean as Percent of Total	2	10	65	23
STATIONS AR-3A & 3B				
Maximum	0.14	0.55	2.00	0.46
Minimum	0.00	0.03	0.14	0.03
Median	0.00	0.06	0.77	0.07
Mean	0.04	0.21	0.98	0.14
Mean as Percent of Total	3	15	72	10
ALL STATIONS				
Maximum	0.41	1.04	2.64	1.36
Minimum	0.00	0.03	0.05	0.00
Median	0.03	0.14	0.70	0.09
Mean	0.09	0.28	0.94	0.32
Mean as Percent of Total	5	17	58	20

The September increase in algal concentration in the two arms may have resulted from the lowering of the reservoir 5.1m (16.6 ft.) from April 9 through September 17. Much of the nutrient material that had been used by algal growth earlier in the year were later lost from the photic zone through settling of aging or dead algae and through settling of the fecal material from the zooplankton which had foraged on the algae. Even though the nutrients were partially returned to the water through decomposition in the hypolimnion, these renewed quantities could not circulate into the photic zone. As the reservoir was drawn down, the epilimnion in the shallower arms came in contact with bottom materials which had formerly been in the hypolimnion. These materials were again able to circulate up into the photic zone and become available for algal growth.

In order to indicate the overall productive level of the reservoir, standing crop values were developed. The algal concentration in mg/l of the sample composited from the photic zone was multiplied by the depth of the zone in metres. The resultant product then became the standing crop in a column one metre square with the depth of the photic zone. The units are grams per square metre (g/m^2).

Standing crop values for total phytoplankton and for blue-green algae are presented in Table IX. This table again indicates the generally minor significance of blue-green algae in the three major sampling locations during 1975. Both the individual values of blue-green standing crop and the mean values for blue-green algae as a percent of the total bring out this point.

The standing crop values for total phytoplankton, as well as the values for algae other than blue-greens, indicate a general algal productivity which should be sufficient to support a desirable and fairly substantial overall biota.

To provide a comparison with another reservoir, standing crops were calculated for the center of the east arm of Lake Almanor. Since the sampling depth intervals at Lake Almanor differed from those at Anderson Reservoir, the results cannot be considered completely comparable, but they should be generally so. The photic-zone standing crops determined for Lake Almanor on June 27, 1973, and August 14, 1973, were 51 g/m^2 and 80 g/m^2, respectively.

During the investigation a sample was collected for in vivo chlorophyll fluorescence from each sampling depth whether or not a sample was collected for phytoplankton analysis. The fluorescence values for these samples are presented in Appendix H.

Table IX

Standing Crop of Algae in Photic Zone

Station:	AR-1			AR-2			AR-3A & 3B		
	Total Algae (g/m^2)	Blue-Green Algae (g/m^2)	Blue-Green Algae as % of Total (%)	Total Algae (g/m^2)	Blue-Green Algae (g/m^2)	Blue-Green Algae as % of Total (%)	Total Algae (g/m^2)	Blue-Green Algae (g/m^2)	Blue-Green Algae as % of Total (%)
4/9/75	27.0	1.9	7	16.5	0.3	2	14.3	0.4	3
5/7/75	15.3	3.0	20	18.2	0.9	5	7.3	1.0	14
5/29/75	5.0	1.2	24	8.3	0.2	3	5.8	1.2	20
7/1/75	13.0	0.0	0	4.6	0.0	0	7.4	0.0	0
9/17/75	5.5	0.3	6	14.3	0.2	1	20.9	0.4	2
Maximum	27.0	3.0	24	18.2	0.9	5	20.9	1.2	20
Minimum	5.0	0.0	0	4.6	0.0	0	5.8	0.0	0
Mean	13.2	1.3	11	12.4	0.3	2	11.1	0.6	8

Vascular Aquatic Plants

In addition to the phytoplankton, the higher order aquatic plants also carry on photosynthesis and therefore can be significant to the overall biologic productivity of a lake. These plants either float at the surface with no attachment to the bottom, or they have roots with which they are attached to the bottom. Free-floating plants are commonly found in warmer waters and in waters with limited wind activity.

Bottom-attached plants (water weeds) can become quite dense and cover a high portion of shallow lakes. An example of such growth was reported in Lake Davis during 1970, when water weeds, mostly Leafy Pondweed, covered all areas of the lake with depths less than 15 feet. This was about 40 percent of the lake surface.

Few observations of bottom-attached plants in Anderson Reservoir were noted during the conduct of the investigation. Some areas in the narrower arms, however, were seldom or never visited so that there may have been some vascular plants which went unobserved. No attempt to identify vascular plants was made during this investigation.

Primary Productivity

A major objective of this investigation was the evaluation of overall biologic productivity of Anderson Reservoir. This evaluation is primarily the determination of the photosynthetic activity carried out in the reservoir. This photosynthetic activity, usually called primary productivity, should constitute a high percent of the food base for the biota of Anderson Reservoir since externally produced food sources are considered to be quite minor.

The light and dark bottle method for determining primary productivity was not attempted during this investigation. There are many problems associated with such work and it was decided that other methods would be used to indicate the level of photosynthetic activity. The major methods used were the determination of phytoplankton standing crop in the photic zone and determination of depletion rates of dissolved oxygen in the nonmixing zones of the reservoir. These items have been discussed earlier in the report.

Other Aquatic Organisms

Zooplankton

Zooplankton tows were made at the center station to determine the general types of zooplankton present and provide some idea of the total concentration. As described earlier, vertical tows were made from a preselected depth to the surface. The tow was started at a depth about 4 to 5 times the depth of the one percent light level except on September 17, 1975. Since the water was nearly anaerobic below 14 to 15 metres on that date, the bottom of the tow was 15 metres. Table X contains a summary of the zooplankton data.

The zooplankters were identified to major taxonomic grouping only. The values in Table X are reported in terms of quantity per cubic metre (1000 litres), a commonly used convention in oceanography and limnology because the relative scarcity of zooplankton.

The limited number of samples collected precludes any sophisticated analysis of the data but a few general conclusions can be drawn.

Table X

Zooplankton Results for Anderson Reservoir

Date Tow Depth (m)	ORGANISM COUNTS (Organisms/m^3) Cladocerans	Copepods Adult	Copepods Nauplii	Rotifers	Total	Suspended Solids Total (mg/m^3)	Suspended Solids Volatile (mg/m^3)
		Center Station No. E6R71021373 (AR-1)					
4/9/75 25m.	15,100	10,850	10,650	8,650	45,250	56	49
5/7/75 25m.	14,620	12.790	21,920	18,070	67,400	58	52
5/29/75 30m.	8,870	8,700	27,970	28,990	74,530	34	31
7/1/75 30m.	4,700	8,300	14,000	2,700	29,700	13.2	11.6
9/17/75 15m.	1,490	500	9,450	41,300	58,710*	9.3	9.3

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* Includes 5,970 organisms/m^3 Actinopoda.

The numbers of zooplankton, ranging from 30,000 to 75,000, are moderate in terms of other lakes. In Lake Tahoe, a rather nonproductive ecosystem, DWR (1970) reported a maximum of about 6,000 organisms/m^3, with most values at all stations being less than 2,000 organisms/m^3. In data from Lake Maggiore, Italy, a lake of high productivity, total numbers of zooplankton ranged between 10,000 and 160,000 organisms/m^3. Zooplankton in Lake Almanor, a moderately productive lake, ranged from 8,000 to 32,000 organisms/m^3.

The number of organisms, however, are not a complete indication of productivity. Although the number of zooplankton in Anderson Reservoir were much higher than in Lake Almanor, the average size of the organisms was much less in Anderson Reservoir. This can be seen by comparing the range of volatile suspended solids for the two reservoirs. The range was 9.3 to 52 mg/m^3 for Anderson and 13 to 86 mg/m^3 for Almanor.

The total mass concentration of zooplankton in Anderson Reservoir should be sufficient to maintain a fairly satisfactory fishery; however, the minute size of the organisms might make them less satisfactory for larger fish to feed on.

Benthic Organisms

As mentioned earlier in this report, attempts to collect benthic organisms proved nonproductive.

Coyote Reservoir Results

Phytoplankton samples were collected from two locations: CR-1 at the end of the boat ramp pier and CR-2 as described on page 47. Data from the analyses are presented in Appendix G.

The sample collected at CR-1 on April 29, 1975, had a high concentration (23.2 mg/l) of total phytoplankton of which *Aphanizomenon* made up 20 mg/l. This is a high concentration and indicates that a bloom existed in the reservoir at that time. The sample was collected from 0.0 to 0.5 m (1.6 ft), about 7.6 m (25 feet) from shore so there is no photic zone standing crop value.

On July 3, 1975, a sample was collected at Station CR-2. It consisted of water from each metre of depth throughout the photic zone, which was 0 to 10.3 m (0 to 33.8 ft). There was a concentration of 4.0 mg/l of total phytoplankton but only 0.16 mg/l of the blue-green algae, *Aphanizomenon* and *Anacystis*. The photic zone standing crop of total phytoplankton was 41.2 g/m^2.

CHAPTER VII

FISHERY CHARACTERISTICS 1/

Resident Fish Species

Fish population sampling and creel census data collected during the past 3 years reveal that 16 species of fish are known to inhabit Anderson Reservoir. Nine species are gamefish, while the remainder are generally considered nongame fishes. An ichthyofaunal list for Anderson Reservoir follows.

I. Game Species

Largemouth bass *(Micropterus salmoides)*
Bluegill *(Lepomis macrochirus)*
Redear sunfish *(Lepomis microlophus)*
Pumpkinseed *(Lepomis gibbonsus)*
Black crappie *(Pomoxis nigromaculatus)*
White crappie *(Pomoxis annularis)*
Channel catfish *(Ictalurus punctatus)*
Brown bullhead *(Ictalurus nebulosus)*
Rainbow trout *(Salmo gairdneri)*

II. Nongame Species

Hitch *(Lavinia exilicauda)*
Sacramento squawfish *(Ptychocheilus grandis)*
Sacramento sucker *(Catostomus occidentalis)*
Golden shiner *(Notemigonus crysoleucas)*
Carp *(Cyprinus carpio)*
Threadfin shad *(Dorosoma petenense)*
Mississippi silversides *(Menidia audens)*

Hitch, Sacramento squawfish and Sacramento sucker are native to the Coyote Creek system. Although rainbow trout are also native to the drainage, those now inhabiting the reservoir are probably emigrants from upstream Coyote Reservoir where the Department of Fish and Game conducts a trout-stocking program. All other species now present in Anderson Reservoir were either introduced by fishermen, originated from Coyote Reservoir and/or farm ponds located within the upstream drainage, or were stocked by the Department of Fish and Game.

1/ This chapter was prepared by the California Department of Fish and Game. Metric units may be obtained by using the conversion table on page x.

Stocking History

Six gamefish species have been stocked at Anderson Reservoir during the past 14 years and since the last dewatering of the reservoir: largemouth bass, redear sunfish, black crappie, channel catfish, white catfish and brown bullhead catfish. The stocking records are summarized in Table XI.

Initial stockings of warmwater gamefish are made to introduce the species for eventual establishment of self-sustaining populations. Any subsequent stockings are for maintenance purposes. Warmwater gamefish generally develop self-sustaining populations and sport fisheries that do not require periodic replenishment-stocking programs.

Catchable trout stocking is not conducted at Anderson Reservoir. Such put-and-take programs are conducted at nearby Coyote Reservoir and several other impoundments in the metropolitan San Jose area.

Sampling Data

Fish populations in Anderson Reservoir have been sampled twice by the Department of Fish and Game during the past 3 years. Region 3, Central Fishery District personnel, sampled fish populations along the littoral zone of the impoundment with the use of a boat electroshocker unit. This is a common sampling method. The resulting data reflect the relative abundance and sizes of those species found within the habitats sampled. Results may not be fully representative of the population structure of species preferring other habitats.

Selected reaches of shoreline were sampled during the daylight hours of October 12, 1973, and the results appear in Table XII.

A more recent sampling was conducted during the evening of April 28, 1976, when selected littoral zone reaches were electroshocked. The results are presented in Table XIII.

The contrast in largemouth bass length-frequency distribution between the two samplings is probably a reflection of differences in season and time of day sampled, as well as variations in year-class strength. During the 1976 night sampling, adult largemouth bass were concentrated in the shallow water areas, particularly in rocky habitats, for spawning. Also, large-sized fish generally move into shallow littoral zone areas during the

Table XI

Anderson Reservoir Fish Stocking Record, 1962-1975

Species	Date	Number	Size 1/
Largemouth bass	4/7/62	39	3.0-6.0 inches FL
Largemouth bass	4/7/62	35	8.0-12.0 inches FL
Largemouth bass	5/5/62	1,200	200 per oz.
Largemouth bass	9/14/62	2,500	7 per lb.
Redear sunfish	4/7/62	169	4.5-9.0 inches FL
Redear sunfish	4/16/65	40	5 per lb.
Black crappie	5/18/62	25	Up to 9 inches
Channel catfish	9/4/62	10,000	455 per oz.
Channel catfish	8/13/74	10,000	70.4 per oz.
White catfish	5/11/62	150	5 per lb.
White catfish	4/7/62	7	8.0-14.0 inches FL
White catfish	9/24/65	75	5 per lb.
Brown bullhead	4/7/62	127	10.0-13.0 inches

1/ The symbol FL is the standard abbreviation and is the distance from the snout of the fish to the fork in its tail. Since the brown bullhead has no fork in its tail, its length includes the full tail.

Table XII

Summary of Sampling Results October 12, 1973

Species	Number	FL Range (in.)	$\overline{FL}$ (in.)
Largemouth bass	94	1.9 - 7.9	5.7
Largemouth bass	1	-	16.9
Bluegill	9	3.6 - 5.4	4.4
Pumpkinseed	9	3.2 - 5.3	4.4
White crappie	1	-	9.3
Sacramento Squawfish	5	2.8 - 6.9	3.8
Carp	3	19.0 - 20.2	19.5
Golden shiner	2	2.0 - 2.1	2.1
Sacramento sucker	1	-	15.6
Threadfin shad	44 (sample)	2.9 - 3.9	3.3
Mississippi silversides	120	1.7 - 3.8	2.4

Table XIII

Summary of Sampling Results April 28, 1976

Species	Number	FL Range (in.)	$\overline{FL}$ (in.)
Largemouth bass	10	4.6 - 7.0	6.2
Largemouth bass	5	8.1 - 9.4	8.5
Largemouth bass	156	9.7 - 13.2	11.5
Largemouth bass	3	13.8 - 17.3	15.1
	174	4.6 - 17.3	11.2
Bluegill	26	1.8 - 6.3	4.1
Redear sunfish	8	3.1 - 4.2	3.7
Black crappie	19	5.2 - 11.8	8.1
Channel catfish	1	-	7.2
Brown bullhead	1	-	10.2
Sacramento sucker	8	10.8 - 15.8	14.2
Hitch	1	-	10.5
Golden shiner	1	-	2.1
Carp	11	10.6 - 22.1	16.7
Threadfin shad	7 (sample)	2.6 - 4.0	3.4

night for feeding. Differences in season and time of day sampled must also be considered when comparing the sampling results for other species.

Status of Fishery Resources

Anderson Reservoir is managed as a warmwater sport fishery. It is one of the most popular waters in Santa Clara County for largemouth bass and crappie fishing. Sunfishes also provide substantial sport value. Fingerling channel catfish planted in 1974 should enhance the existing moderate catfish fishery in the next few years. Emigrant rainbow trout provide occasional sport, some reaching trophy size.

The expenditure of fishing effort at Anderson Reservoir during 1975, has been estimated at 32,000 angler days.

The Department of Fish and Game proposed to initiate a largemouth bass reward tag program in 1977. A sample of Anderson Reservoir bass will be tagged with 5-dollar reward tags to assist in determining the rate at which bass are harvested by anglers.

There is a scarcity of fish cover and shelter in Anderson Reservoir. The introduction of artificial shelter units would significantly increase the carrying capacity of the reservoir for warmwater gamefish and enhance the concomitant sport fishery.

CHAPTER VIII

MANAGEMENT CONSIDERATIONS

In recent years, the benefits derived from in-place use of a reservoir for aesthetic purposes, for fishing, and for other recreational activities have become increasingly important. In many reservoirs, the value of these benefits approaches the value of the water derived from the reservoir for water supply. To maximize these benefits special management practices may have to be established and carried out.

Each reservoir is more or less unique in its many characteristics, such as configuration, mean depth, retention time, geographic location, climate, and dissolved mineral content. All of these aspects help produce the final limnologic conditions of a lake. There are also certain watershed characteristics, such as topography, geology, vegetative cover, precipitation, and man's activities, which influence limnologic conditions.

Because of the complexity of the above-mentioned influential characteristics, the management practices necessary for one lake and its watershed may be considerably different from those for another. Establishment of a suitable management program for a given lake, therefore, can result only from a complete consideration of the many aspects involved. The establishment of such a program is beyond the scope of this investigation, but some of the items which should be considered are discussed in this chapter.

Evaluation of Basin Characteristics

Most watershed features have only an indirect effect on the limnologic conditions of a lake, but since the lake exists only as a result of the runoff from the watershed, the quantity, quality, and timing of this runoff is very important. These three aspects of the runoff are affected both by natural watershed characteristics and by man's use of the watershed.

In order to understand runoff characteristics, the various items affecting it should be studied in this manner: (1) existing data should be searched out and accumulated; (2) accumulated data should be tabulated, processed, and evaluated; and (3) new data should be obtained in areas indicated by evaluation of existing data.

Climatologic and Hydrologic Information

The isohyetal lines as presented on Figure 4 were prepared as part of a broad coastal area. Refinement of these lines may be possible, and a verification test against recent data would be advisable. Such a test might indicate the desirability of establishing one or more new climatologic stations in the basin.

Continued maintenance of the recording anemometer at the dam is recommended. Data from this installation were helpful to this investigation in establishing the time of spring mixing.

Streamflow measurement is necessary to determine the quantities of inflow being contributed by different sectors of the basin. The present network seems adequate for this purpose.

Water quality data of basin streams are also necessary in order to show how the basin is affecting the water quality of the lake. Samples should be collected during key periods of runoff and analyzed for electrical conductivity, turbidity, alkalinity, nutrients (nitrogen and phosphorus) and other constituents considered necessary. The usual field determinations should also be made. Continuous maintenance of such a monitoring program might not be necessary, but the sampling intervals should be of a frequency and duration sufficient to show any changes that might be occurring.

Geology, Topography, and Soils

Geologic formations which exist in a basin are important for their mineral makeup, their topographic conformations, and for the soils which develop over them.

A generalization of the geology in the Anderson Reservoir area is shown on the San Jose sheet of the Geologic Map of California, published by the California Division of Mines and Geology at a scale of 1:250,000. Unpublished detailed geologic mapping at a scale of 1:24,000 is available in the files of the Central District, Department of Water Resources, for the Morgan Hill and Mt. Sizer 7.5 minute quad maps.

The rock types included in the basin influence the water quality of surface runoff in contributing dissolved minerals. Man's use of the basin does not usually affect this mineral contribution except in the case of certain extensive mining activities.

The topography of the basin is presented on quadrangle maps of the 7.5 minute series prepared by the U. S. Geological Survey. These maps and their contour intervals are listed:

Gilroy*	20	Morgan Hill*	40
Gilroy Hot Springs	40	Mt. Sizer*	40
Isabel Valley	40	Mt. Stakes	40
Lick Observatory	40	Pacheco Peak	40
Mississippi Creek	40		

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* Secondary 10-foot contour interval in valley floor areas.

The mantle of soil that exists over much of the basin has been studied and a report concerning these soils was prepared by the Soil Conservation Service of the U. S. Department of Agriculture. The report, "Soils of Santa Clara Valley", was released August 15, 1968.

Land Classification and Land Use

As part of a statewide program of the California Department of Water Resources, a detailed survey of land use of an area which includes Anderson Reservoir watershed was conducted during 1970. A classification of habitable land types was also made by the Department in 1973. The land classification did not include a detailed determination of soil types.

Natural Resources

In developing information concerning the watershed, a comprehensive inventory of natural resources should be prepared. The existence of these resources determine to a large extent the types of activities that man will pursue in the basin. Although some aspects of these resources might be included in some of the other accumulations of information, a specific inventory of these resources would be useful.

Planning for Land Use Regulations

Careful consideration and study should be given to the acquired watershed information. These studies should lead to the development of plans for regulation of present and future land use. Regulations should be developed to minimize the harmful effects which can result from man's use of the basin; however, the regulations should be only a part of an overall effort to protect all of the environment.

Soil Disturbance

Soils are often disturbed as a part of land-development activities such as roadbuilding, homesite preparations, and recreation. Soil disturbance may in turn lead to many undesirable effects in surface waters. Turbidity may be increased, resulting in aesthetic degradation, and the reduction of photosynthetic productivity. Deposits of sediments may be increased causing accelerated loss of reservoir storage space. Additional dissolved minerals may be added to the waters, thus reducing their quality.

Soil types of the basin, along with the land slope and protective cover, should be studied. Methods for conducting soil disturbing activities in different situations should be developed and regulations regarding these practices should be adopted.

Waste Generation and Disposal

Wastes are frequently produced as a result of man's activities; sewage and domestic solid wastes are two of the most familiar examples. Other wastes are also produced by many different activities, such as construction, livestock production, industrial activities, and recreation.

The volume of sewage currently being produced within the watershed is not large since its population is relatively low. Many of these persons, however, live in the immediate vicinity of Coyote and Anderson Reservoirs. Disposal of sewage from some homes is through septic tanks and leach fields.

Because of the difficulty in determining the level of nutrients available to photosynthetic organisms of a lake, it is not easy to establish the levels at which overproduction of algae will result. For this reason, significant new contributions of nutrients must be considered as a potential threat to any lake with moderate levels of phytoplankton production.

If the basin population increases significantly, special efforts may be necessary to prevent the additional sewage which would be generated from causing undesirable nutrient levels in the lake. The suitability of soils for leach field disposal of sewage should be given careful consideration when new installations are proposed since failure of these disposal systems may produce health hazards and provide little nutrient reduction.

Waste disposal in the basin is under the regulatory authority and surveillance of the California Regional Water Quality Control Board, San Francisco Bay Region and Santa Clara County Health Department for septic tanks. Basin management planning should be coordinated with the policies and actions of these agencies.

Other Activities

The wide variety of man's activities produces many different effects on the environment, and some of these effects are not easily recognized. Planning for protection of the environment in these instances is difficult. Special consideration should, therefore, be given to any proposal for major changes in land use in order to detect these more subtle environmental effects.

Reservoir Operation and Management

The use of all large reservoirs for multiple benefits is desirable; however, these differing uses and their related management practices are sometimes in conflict with one another. To maximize the benefits from a reservoir, an operational and management plan should be developed. Since Anderson Dam was constructed for the primary purpose of impounding water for recharge of the downstream ground water basin, any new practices added to a new management plan must be compatible with the primary purpose of the reservoir.

Withdrawals and Releases

The timing and rates of releases from a reservoir are quite important since they affect the surface elevation, and most in situ uses of the reservoir are in turn affected. The present release schedule for Anderson Reservoir is such that a surface elevation satisfactory for all fishery and recreational purposes exists most of the time. The fluctuations of surface elevation are indicated in Appendix J.

Dissolved Oxygen Control by Aeration

The warm-water sport fishery of Anderson Reservoir exists in the upper part of the reservoir where DO levels are good. For this reason, artificial aeration of the water is not needed to maintain that fishery.

Aeration might be considered, however, if hydrogen sulfide develops near the bottom and becomes a problem in the water released from the reservoir.

The most commonly used aeration system is quite simple in design and relatively inexpensive to install and operate. The system includes an adequately sized air compressor and a hose connection to diffuser heads or perforated tubes which are suspended at the desirable depth. This system can produce significant increases in DO only if sufficient air is injected to cause mixing of the reservoir.

Since the above system produces destratification and mixing, its use will result in an increase of the water temperature at the depth where air is injected. This is because the mixed water column above the injection point develops a nearly uniform temperature approximately equal to the average temperature of the water mass above the injection point prior to aeration.

Another aeration system exists where vertical mixing of the water is avoided. In this system, the colder water of the hypolimnion is aerated in such a way that destratification of the reservoir does not occur. Should aeration ever become necessary, this method should be considered. With such a aystem, establishment of a secondary coldwater sport fishery might become feasible.

Control of Rooted Plants

Bottom-attached aquatic plants (water weeds) often become a nuisance in shallow portions of lakes. Since there are several shallow areas in the reservoir, heavy growths of water weeds could develop at some time. Future growth of these plants should be closely observed, and control measures should be considered if they do reach nuisance levels. Control measures can be mechanical, chemical, biological, or operational in nature. Since each of these measures has its advantages and disadvantages, careful consideration should be made in choosing one or more of them.

Limnologic Monitoring

The results of this investigation have not indicated a definite need for any new practices in the previously discussed areas of operation and management. There is, however, a need for the inauguration of some sort of limnologic monitoring program to depict changes in conditions and to indicate the need to adopt new management practices. The new program should probably include some of the elements of the present study.

The old stations (AR-1, AR-2 and AR-3B) should be included in the new program. The station at the center, near the dam (AR-1), should remain as the key station since it indicates conditions existing in this deeper main body of the lake. Because of the occurrence of blue-green algae blooms in the upper part of the south arm, a supplemental station (AR-4A) should be located near the old station AR-4. That portion of the reservoir should be visited on the same day the other stations are sampled, and a visual observation of conditions should be made. If surface accumulations of algae are seen or if heavy amounts of algae can be seen in the water column, the station should be sampled.

Nutrient sampling should be conducted at Stations AR-1, 2, and 3B 10 to 14 days after an occurrence of heavy winds during the period March 15 to April 30. Samples should be collected at one-third and two-thirds of total depth, and about 2 metres (6.6 ft) above the bottom. A vertical temperature profile should be made using a depth thermistor. The individual samples should be analyzed for dissolved oxygen, EC, pH, and turbidity, and then composited to be analyzed for NO_3^-, NH_4^+, organic nitrogen, filterable orthosphosphate, total phosphate, EC, total hardness, alkalinity, turbidity, and phytoplankton (count, identification and concentration). Analysis for the dissolved heavy metals -- copper, zinc, iron and manganese -- should also be carried out.

A secchi disk measurement should also be made, and a composite sample should be taken from the photic zone. This is easily accomplished by slowly lowering one end of a hose with both ends open to a depth equal to 4 times the secchi disk reading. The valve at the upper end should then be closed and the hose brought slowly to the surface. The lower end of the hose should then be placed in a clean container large enough to hold the contents. The valve should then be raised above the rest of the hose and opened. A phytoplankton sample should be collected from the container after the contents have been thoroughly mixed.

In addition to the sampling to be done just after spring overturn, samples should be collected about the middle of May, June, and

September. At these times phytoplankton samples should be collected from the photic zone at AR-1, 2, and 3B. The usual field determinations including a vertical temperature profile and secchi disk measurement, should also be made.

During the three visits just mentioned, a vertical profile for DO should also be conducted at Station AR-1. Samples should be collected at the surface and bottom of the epilimnion and at one or two-metre intervals through the metalimnion. Samples should be collected at 5-metre intervals through the hypolimnion. The rate of DO depletion between visits should then be calculated as was discussed in Chapter IV.

A phytoplankton sample should be collected from the photic zone at Station AR-1 about the first of the month during June, July, and August.

The methods and techniques used during this proposed monitoring program should be those used during the present investigation. These methods have been described in Chapter IV.

APPENDIX A

SUMMARY OF ANNUAL RAINFALL DATA

Anderson Dam

Coyote Reservoir

Coe Park

Morgan Hill

Jackson Ranch

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I STATISTICAL SUMMARY OF ANNUAL RAINFALL                                                                                               I
I   STN     INDEX                                             CALIF COORDINATES  MEASUREMENTS          GAGE                            I
I   NO.     NUMBER    STATION NAME                  ELEV        X          Y     BEGAN  ENDED  CTY OPER TYPE                           I
I   41     491600    LEROY ANDERSON DAM             665     1671909     243955    1950     0     43   43  7E                            I
I--------------------------------------------------------------------------------------------------------------------------------------I
I   MONTHLY TOTALS FOR RAINFALL SEASONS 1951 THROUGH 1975                                                    SEASON   CAL.   CAL YR    I
I   SEASON     JUL     AUG     SEP     OCT     NOV     DEC     JAN     FEB     MAR     APR     MAY     JUN     TOTAL    YEAR   TOTAL     I
I   1950-51    0.00    0.00    0.00    1.76    4.27    4.67    2.71    1.52    0.92    0.76    0.81    0.00    17.42    1951   16.66     I
I   1951-52    0.00    0.00    0.00    0.90    3.25    5.79    7.85    1.26    4.41    1.21    0.13    0.00    24.80    1952   24.81     I
I   1952-53    0.00    0.00    0.00    0.00    2.37    7.58    3.15    0.00    2.09    1.40    0.38    0.11    17.08    1953   10.89     I
I   1953-54    0.00    0.00    0.00    0.22    3.04    0.50    3.50    2.74    4.23    1.32    0.16    0.00    15.71    1954   18.29     I
I   1954-55    0.00    0.00    0.00    0.00    2.81    3.53    5.50    2.46    0.06    1.65    0.89    0.00    16.90    1955   25.99     I
I   1955-56    0.00    0.00    0.00    0.01    1.52   13.90    5.79    2.17    0.10    1.29    0.66    0.01    25.45    1956   11.89     I
I   1956-57    0.00    0.00    0.41    0.35    0.04    0.57    3.88    4.28    1.87    1.54    1.77    0.20    15.41    1957   19.47     I
I   1957-58    0.00    0.00    0.05    0.66    0.45    4.77    4.40    8.09    6.79    6.18    0.59    0.09    32.07    1958   27.36     I
I   1958-59    0.00    0.00    0.19    0.00    0.25    0.78    7.39    6.86    0.26    0.70    0.00    0.00    16.43    1959   18.51     I
I   1959-60    0.00    0.00    2.65    0.00    0.00    0.65    4.52    5.06    0.76    2.34    0.33    0.00    16.31    1960   18.12     I
I   1960-61    0.00    0.00    0.00    0.07    3.34    1.70    1.70    0.80    1.78    0.76    0.61    0.06    10.82    1961    9.73     I
I   1961-62    0.00    0.09    0.14    0.04    2.17    1.58    1.09    9.69    3.34    0.12    0.00    0.00    18.26    1962   21.90     I
I   1962-63    0.00    0.00    0.00    5.27    0.21    2.18    7.08    4.78    4.20    4.28    0.21    0.00    28.21    1963   27.08     I
I   1963-64    0.00    0.00    0.14    1.62    4.63    0.14    4.19    0.21    1.67    0.43    0.19    0.35    13.57    1964   16.79     I
I   1964-65    0.00    0.16    0.00    1.32    2.61    5.66    4.35    0.63    1.67    3.54    0.00    0.00    19.94    1965   20.66     I
I   1965-66    0.00    0.50    0.00    0.17    5.19    4.61    1.55    1.33    0.19    0.33    0.16    0.07    14.10    1966   13.32     I
I   1966-67    0.32    0.00    0.15    0.00    5.35    3.87    8.88    0.17    6.85    5.07    0.26    0.58    31.50    1967   25.60     I
I   1967-68    0.00    0.00    0.00    0.20    1.35    2.24    4.46    1.32    3.11    0.67    0.11    0.00    13.46    1968   17.82     I
I   1968-69    0.00    0.78    0.00    0.51    2.66    4.20   13.88    9.44    1.41    2.27    0.01    0.02    35.18    1969   32.80     I
I   1969-70    0.00    0.00    0.08    1.37    1.26    3.06    6.76    2.04    3.00    0.32    0.03    0.00    17.92    1970   23.80     I
I   1970-71    0.00    0.00    0.00    0.14    5.83    5.68    1.15    0.60    2.31    1.66    0.25    0.00    17.62    1971   12.39     I
I   1971-72    0.00    0.03    0.07    0.06    1.21    5.05    1.55    0.46    0.03    0.28    0.00    0.09     8.83    1972   13.31     I
I   1972-73    0.00    0.00    0.12    2.84    6.70    1.24    6.53    9.02    2.77    0.32    0.01    0.00    29.55    1973   28.24     I
I   1973-74    0.00    0.00    0.05    2.43    2.86    4.25    4.78    0.61    6.15    1.96    0.01    0.02    23.12    1974   19.09     I
I   1974-75    0.47    0.00    0.00    1.49    0.60    3.00    2.00    4.90    6.10    1.20    0.00    0.10    19.86    1975   *****     I
I                                                                                                                                      I
I AVG RAINF    0.03    0.06    0.16    0.88    2.56    3.65    4.75    3.22    2.64    1.66    0.30    0.07    19.98           20.63     I
I STD DEV      0.11    0.18    0.52    1.21    1.89    2.88    2.86    3.10    2.11    1.53    0.40    0.13     6.81            4.54     I
I SKEW      0.3E+010.3E+010.4E+010.2E+01-.2E+01-.4E+00-.3E+01-.2E+00-.1E+010.2E+000.2E+010.3E+01  -.2E+02          -.9E+02     I
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I STATISTICAL SUMMARY OF ANNUAL RAINFALL                                                                                               I
I  STN     INDEX                                           CALIF COORDINATES  MEASUREMENTS          GAGE                               I
I  NO.     NUMBER    STATION NAME                   ELEV      X         Y      BEGAN  ENDED   CTY OPER TYPE                              I
I   21     210000    COYOTE RESERVOIR                300    1697213    216004   1936      0     43   43   7E                               I
I------------------------------------------------------------------------------------------------------------------------------------I
I   MONTHLY TOTALS FOR RAINFALL SEASONS 1936 THROUGH 1975                                                SEASON    CAL.   CAL YR      I
I    SEASON     JUL      AUG      SEP      OCT      NOV      DEC      JAN      FEB      MAR      APR      MAY      JUN     TOTAL     YEAR   TOTAL      I
I    1935-36    0.00     0.00     0.00     0.00     0.00     0.00     0.00     3.03     1.69     1.65     0.71     0.03     7.11    1936   11.37      I
I    1936-37    0.00     0.00     0.00     0.00     0.00     4.26     1.31     6.98     5.12     1.34     0.03     0.20    19.24    1937   24.00      I
I    1937-38    0.00     0.00     0.00     0.24     0.82     7.96     3.58    10.08     5.52     1.97     0.09     0.00    30.26    1938   24.75      I
I    1938-39    0.00     0.00     0.00     1.84     0.66     1.01     1.95     2.18     2.85     0.52     1.10     0.00    12.11    1939   10.64      I
I    1939-40    0.00     0.00     0.00     0.67     0.25     1.12     9.59     8.12     3.48     0.69     0.42     0.00    24.34    1940   31.32      I
I    1940-41    0.00     0.00     0.23     0.77     0.56     7.46     5.40     7.66     6.68     4.84     0.60     0.20    34.40    1941   34.02      I
I    1941-42    0.00     0.00     0.00     1.28     0.40     6.96     4.81     2.56     2.94     3.98     1.37     0.00    24.30    1942   21.57      I
I    1942-43    0.00     0.00     0.00     0.66     3.36     1.89     9.52     3.07     4.08     1.83     0.00     0.08    24.49    1943   23.39      I
I    1943-44    0.00     0.00     0.00     0.64     0.74     3.43     3.39     9.69     1.74     1.74     0.58     0.24    22.19    1944   26.57      I
I    1944-45    0.00     0.00     0.00     1.74     4.85     2.60     0.20     7.72     4.73     0.49     0.53     0.02    22.88    1945   25.88      I
I    1945-46    0.03     0.07     0.00     1.94     2.89     7.26     1.25     2.51     2.43     0.11     0.69     0.00    19.18    1946   15.46      I
I    1946-47    0.00     0.00     0.07     0.18     6.00     2.22     0.28     1.97     3.32     0.33     0.42     0.34    15.13    1947   10.31      I
I    1947-48    0.00     0.00     0.00     1.97     0.86     0.32     0.21     2.52     4.00     4.16     1.08     0.00    15.62    1948   16.03      I
I    1948-49    0.00     0.00     0.00     0.00     0.49     3.57     1.44     3.66     7.29     0.00     0.51     0.00    16.96    1949   18.81      I
I    1949-50    0.00     0.02     0.00     0.00     3.41     2.48     3.83     2.36     2.14     2.95     0.25     0.00    17.44    1950   25.21      I
I    1950-51    0.00     0.00     0.00     2.93     5.12     5.63     2.74     1.88     1.07     1.00     0.71     0.00    21.08    1951   17.81      I
I    1951-52    0.00     0.00     0.00     0.66     2.57     7.18     8.79     2.31     4.63     1.44     0.15     0.00    27.73    1952   26.13      I
I    1952-53    0.00     0.00     0.05     0.10     2.13     6.53     4.08     0.00     2.28     1.94     0.64     0.24    17.99    1953   11.63      I
I    1953-54    0.00     0.11     0.00     0.23     1.67     0.44     2.90     2.31     4.19     1.38     0.17     0.12    13.52    1954   17.32      I
I    1954-55    0.00     0.00     0.00     0.00     2.46     3.79     5.66     2.15     0.20     2.01     0.54     0.00    16.81    1955   26.57      I
I    1955-56    0.00     0.00     0.00     0.00     1.36    14.65     6.29     1.74     0.15     1.82     0.80     0.00    26.81    1956   13.28      I
I    1956-57    0.00     0.00     0.38     1.18     0.00     0.92     3.55     3.44     2.01     2.51     2.04     0.19    16.22    1957   20.13      I
I    1957-58    0.00     0.00     0.21     1.47     0.56     4.15     6.14     6.28     8.76     6.20     0.62     0.09    34.48    1958   29.26      I
I    1958-59    0.00     0.00     0.17     0.00     0.30     0.70     6.09     7.48     0.61     0.15     0.02     0.00    15.52    1959   19.10      I
I    1959-60    0.00     0.00     4.04     0.00     0.00     0.71     3.91     7.24     0.65     2.14     0.26     0.00    18.95    1960   18.57      I
I    1960-61    0.00     0.00     0.13     0.04     2.72     1.48     1.93     1.09     2.09     1.23     0.50     0.12    11.33    1961   11.26      I
I    1961-62    0.00     0.10     0.12     0.11     2.29     1.68     2.09     6.90     3.15     0.09     0.00     0.02    18.55    1962   19.69      I
I    1962-63    0.00     0.00     0.00     2.42     0.43     2.59     6.22     6.36     3.72     5.48     0.42     0.01    27.65    1963   29.94      I
I    1963-64    0.00     0.03     0.19     2.46     4.90     0.15     4.43     0.16     1.97     0.18     0.48     0.34    15.29    1964   20.21      I
I    1964-65    0.00     0.06     0.07     1.31     3.40     7.81     4.04     0.76     1.67     3.29     0.00     0.00    22.41    1965   21.60      I
I    1965-66    0.00     0.78     0.02     0.19     6.05     4.80     1.65     2.17     0.20     0.88     0.31     0.00    17.05    1966   15.42      I
I    1966-67    0.42     0.00     0.27     0.00     4.75     4.77     9.05     0.22     5.62     7.39     0.22     1.12    33.83    1967   28.60      I
I    1967-68    0.00     0.00     0.00     0.40     1.60     2.98     3.21     1.28     3.28     1.20     0.05     0.00    14.00    1968   16.67      I
I    1968-69    0.00     0.05     0.01     0.51     2.83     4.25    13.80     9.73     1.42     2.01     0.00     0.11    34.72    1969   32.30      I
I    1969-70    0.00     0.00     0.17     1.63     1.20     2.23     8.69     2.42     2.74     0.35     0.00     0.04    19.47    1970   26.19      I
I    1970-71    0.00     0.00     0.00     0.33     6.29     5.33     1.83     0.54     1.78     2.03     0.71     0.00    18.84    1971   13.91      I
I    1971-72    0.00     0.03     0.03     0.08     1.72     5.16     1.11     0.86     0.08     0.91     0.00     0.08    10.06    1972   13.19      I
I    1972-73    0.00     0.00     0.00     2.29     6.48     1.38     7.28     7.06     3.31     0.39     0.00     0.00    28.19    1973   *****      I
I    1974-75   *****    *****    *****    *****    *****    *****    *****     3.80     5.30     1.60     0.00     0.00    *****    1975   *****      I
I                                                                                                                                    I
I AVG RAINF     0.01     0.03     0.16     0.80     2.27     3.75     4.27     3.96     3.05     1.90     0.44     0.09    20.69           21.34      I
I STD DEV       0.07     0.13     0.64     0.86     2.00     2.97     3.14     3.03     2.02     1.73     0.43     0.19     6.97            5.69      I
I SKEW      0.6E+010.5E+010.6E+010.3E-01-.7E+00-.7E+00-.2E+01-.2E+01-.3E+010.1E+000.5E+000.4E+01  -.3E+02          -.5E+02      I
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I STATISTICAL SUMMARY OF ANNUAL RAINFALL                                                                                                    I
I   STN     INDEX                                              CALIF COORDINATES  MEASUREMENTS          GAGE                                I
I   NO.    NUMBER   STATION NAME                       ELEV        X           Y    BEGAN  ENDED  CTY OPER TYPE                             I
I   17     158400   COE PARK                           2640    1696200    249900    1961     0     43   43   7E                             I
I-------------------------------------------------------------------------------------------------------------------------------------------I
I   MONTHLY TOTALS FOR RAINFALL SEASONS 1961 THROUGH 1975                                                        SEASON    CAL.   CAL YR    I
I    SEASON     JUL      AUG      SEP      OCT      NOV      DEC      JAN      FEB      MAR      APR      MAY      JUN     TOTAL    YEAR   TOTAL     I
I   1960-61    0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     2.70     1.40     0.80     0.00      4.90    1961     9.30    I
I   1961-62    0.00     0.00     0.00     0.20     2.50     1.70     1.50    *****     4.10     0.10     0.00     0.00     *****    1962    *****    I
I   1962-63    0.00     0.00     0.00     5.60     0.40     2.70     7.80     3.00     5.00     5.40     0.50     0.00     30.40    1963    29.20    I
I   1963-64    0.00     0.00     0.00     1.90     5.20     0.40     5.30     0.30     1.90     0.10     0.70     0.40     16.20    1964    21.61    I
I   1964-65    0.00     0.00     0.00     1.20     3.81     7.90     5.60     1.00     1.90     3.50     0.00     0.00     24.91    1965    23.99    I
I   1965-66    0.00     0.00     0.00     0.28     7.00     4.71     1.58     1.73     0.21     0.64     0.17     0.00     16.32    1966    12.73    I
I   1966-67    0.00     0.00     0.15     0.00     5.71     2.54     6.59     0.26     7.02     5.21     0.27     1.22     28.97    1967    24.21    I
I   1967-68    0.00     0.00     0.00     0.00     1.94     1.70     4.12     1.45     2.32     0.60     0.28     0.00     12.41    1968    16.57    I
I   1968-69    0.00     0.28     0.00     0.43     3.11     3.98    14.18    11.34     1.23     2.50     0.00     0.05     37.10    1969    37.93    I
I   1969-70    0.00     0.00     0.08     1.70     1.72     5.13    10.03     3.37     2.47     0.60     0.00     0.00     25.10    1970    21.97    I
I   1970-71    0.00     0.00     0.00     0.00     0.30     5.20     3.10     1.10     5.10     2.00     0.60     0.00     17.40    1971    22.60    I
I   1971-72    0.00     0.00     0.30     0.20     2.00     8.20     1.90     1.40     0.10     0.90     0.00     0.10     15.10    1972    18.70    I
I   1972-73    0.00     0.00     0.40     4.20     7.90     1.80    10.50    10.40     3.40     0.80     0.00     0.00     39.40    1973    39.40    I
I   1973-74    0.00     0.00     0.20     3.30     1.80     9.00     0.00     0.00    10.40     3.60     0.00     0.00     28.30    1974    23.20    I
I   1974-75    1.20     0.00     0.00     3.00     1.30     3.70     2.80     9.50     8.50     2.20     0.00     0.10     32.30    1975    *****    I
I                                                                                                                                             I
I AVG RAINF    0.08     0.02     0.08     1.47     2.98     3.91     5.00     3.20     3.76     1.97     0.22     0.12     23.49            25.12    I
I STD DEV      0.30     0.07     0.12     1.73     2.37     2.70     4.03     3.90     2.39     1.69     0.28     0.31      9.64             5.05    I
I SKEW      0.3E+010.3E+010.1E+010.4E+00-.1E+01-.3E+01-.1E+010.7E+00-.1E+01-.8E+000.4E+000.3E+01    -.1E+02           -.1E+03    I
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I STATISTICAL SUMMARY OF ANNUAL RAINFALL                                                                                      I
I   STN     INDEX                                       CALIF COORDINATES   MEASUREMENTS          GAGE                         I
I   NO.    NUMBER    STATION NAME               ELEV       X          Y      BEGAN  ENDED  CTY OPER TYPE                        I
I    70    630901    MORGAN HILL (OAK FLAT)      1950   1635803     248579   1940     0     43  01   7D                         I
I-----------------------------------------------------------------------------------------------------------------------------I
I    MONTHLY TOTALS FOR RAINFALL SEASONS 1969 THROUGH 1975                                           SEASON    CAL.   CAL YR   I
I     SEASON     JUL      AUG      SEP      OCT      NOV      DEC      JAN      FEB      MAR      APR      MAY      JUN      TOTAL     YEAR    TOTAL    I
I    1968-69    0.00     0.70     0.00     0.59     3.05     4.43    15.14     9.25     1.78     2.38     0.00     0.09     37.41     1969    35.56    I
I    1969-70    0.03     0.00     0.00     1.48     1.53     3.88     9.49     2.42     2.66     0.40     0.00     0.24     21.13     1970    27.27    I
I    1970-71    0.00     0.00     0.00     0.53     6.08     6.45     1.95     0.77     3.26     1.87     0.45     0.00     21.36     1971    16.05    I
I    1971-72    0.00     0.00     0.14     0.08     1.48     6.05     1.30     1.12     0.07     0.71     0.00     0.00     11.45     1972    15.60    I
I    1972-73    0.00     0.00     0.20     3.52     6.29     1.89     8.33     8.22     3.06     0.68     0.00     0.00     32.19     1973    33.05    I
I    1973-74    0.00     0.00     0.10     2.59     4.75     5.32     2.73     0.37     6.86     2.60     0.00     0.00     25.82     1974    20.22    I
I    1974-75    1.07     0.00     0.00     2.06     0.88     3.15     1.34     7.46     6.48     3.08     0.00     0.10     25.62     1975    *****    I
I                                                                                                                             I
I AVG RAINF     0.16     0.10     0.06     1.55     3.44     4.45     5.68     4.30     3.45     1.67     0.06     0.06     25.00              29.55    I
I STD DEV       0.37     0.24     0.08     1.16     2.10     1.51     4.79     3.54     2.26     0.99     0.16     0.08      7.73               8.43    I
I SKEW       0.2E+010.2E+010.1E+00-.2E+01-.4E+01-.3E+02-.3E+00-.2E+01-.3E+01-.5E+010.2E+010.8E+00   -.3E+02             -.4E+02    I
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I STATISTICAL SUMMARY OF ANNUAL RAINFALL                                                                                          I
I   STN     INDEX                                         CALIF COORDINATES  MEASUREMENTS          GAGE                           I
I   NO.    NUMBER    STATION NAME                ELEV        X         Y      BEGAN  ENDED  CTY OPER TYPE                         I
I    35    432260    JACKSON RANCH                550    1680571    242395    1955      0    43   01   7D                         I
I---------------------------------------------------------------------------------------------------------------------------------I
I    MONTHLY TOTALS FOR RAINFALL SEASONS 1960 THROUGH 1972                                               SEASON   CAL.   CAL YR   I
I     SEASON     JUL     AUG     SEP     OCT     NOV     DEC     JAN     FEB     MAR     APR     MAY     JUN   TOTAL   YEAR   TOTAL   I
I    1959-60    0.00    0.00    3.15    0.00    0.00    0.90    1.02    6.25    0.68    2.55    0.00    0.00   14.55   1960   15.31   I
I    1960-61    0.00    0.00    0.10    0.00    3.15    1.56    0.27    0.90    2.49    0.95    0.80    0.00   10.22   1961   *****   I
I    1961-62    0.00    0.00    0.00    0.00    3.03   *****    1.50    8.40    0.00    0.00    0.00    0.00   *****   1962   17.67   I
I    1962-63    0.00    0.00    0.00    4.95    0.30    2.52    0.00    1.70    4.76    4.39    0.12    0.00   18.74   1963   17.58   I
I    1963-64    0.00    0.00    0.11    1.70    4.80    0.00    5.28    0.13    3.37    0.30    0.00    0.35   16.04   1964   21.00   I
I    1964-65    0.00    0.00    0.00    1.80    2.56    7.21    4.96    0.52    2.37    2.65    0.00    0.00   22.07   1965   22.02   I
I    1965-66    0.00    0.59    0.00    0.00    6.19    4.74    1.62    1.58    0.10    0.45    0.12    0.06   15.45   1966   12.83   I
I    1966-67    0.10    0.00    0.15    0.00    4.78    3.87    8.72    0.09    6.74    5.29    0.30    0.87   30.91   1967   25.90   I
I    1967-68    0.00    0.00    0.00    0.00    1.67    2.22    4.63    1.16    3.14    1.04    0.00    0.00   13.86   1968   18.92   I
I    1968-69    0.00    0.00    0.00    0.52    3.80    4.63   16.04   11.05    0.85    2.43    0.00    0.00   39.32   1969   37.35   I
I    1969-70    0.00    0.00    0.00    1.55    1.46    3.97    8.64    2.69    3.06    0.00    0.00    0.01   21.38   1970   27.40   I
I    1970-71    0.00    0.00    0.00    0.18    6.35    6.47    1.94    0.52    2.85    1.69    0.06    0.00   20.06   1971   14.40   I
I    1971-72    0.00    0.03    0.12    0.00    1.28    5.91    1.67    0.89    0.02    0.37    0.00    0.00   10.29   1972   *****   I
I                                                                                                                                 I
I AVG RAINF     0.01    0.05    0.28    0.82    3.03    3.67    4.33    2.76    2.34    1.70    0.11    0.10   19.41           23.04   I
I STD DEV       0.03    0.16    0.83    1.37    2.00    2.17    4.39    3.38    1.93    1.63    0.22    0.24    8.11            1.44   I
I SKEW       0.3E+010.3E+010.3E+010.2E+01-.3E+01-.5E+010.4E+000.9E+00-.1E+01-.3E+000.2E+010.2E+01   -.1E+02           -.4E+04   I
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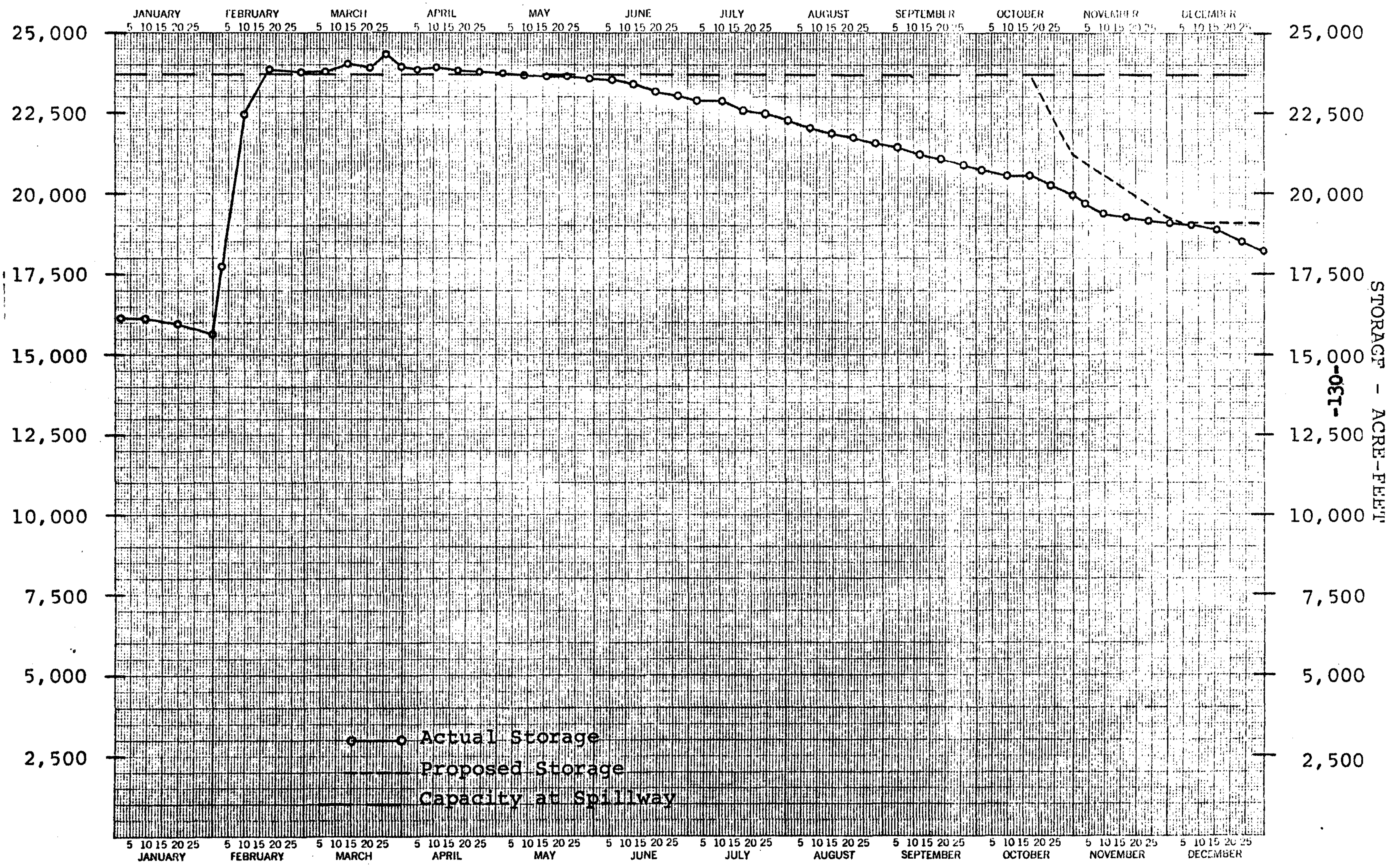
APPENDIX B

MONTHLY EVAPORATION RATE

ANDERSON RESERVOIR

K&E 1 YEAR BY DAYS X 250 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 2893

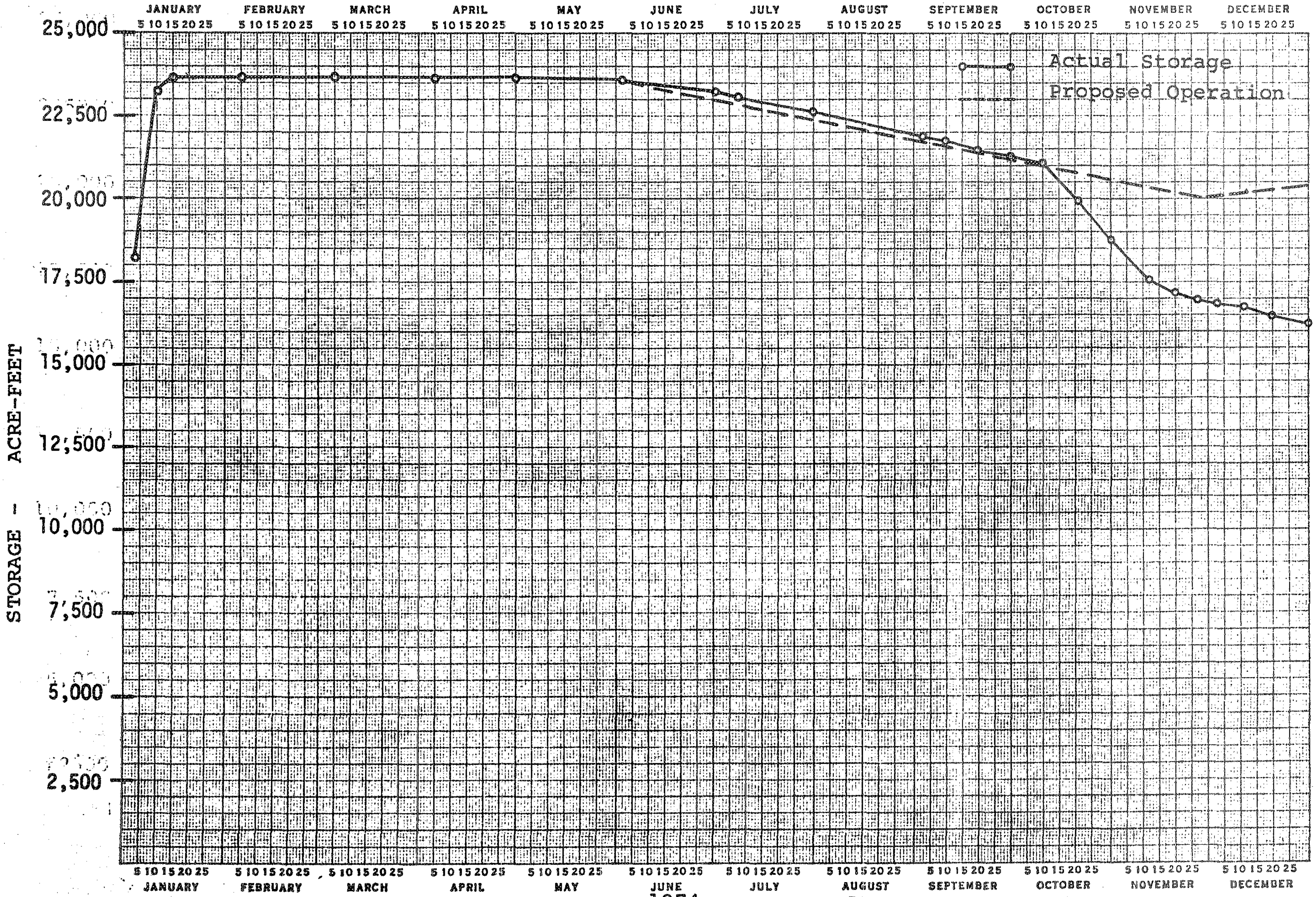


CAPACITY - 23,700 AF

1975

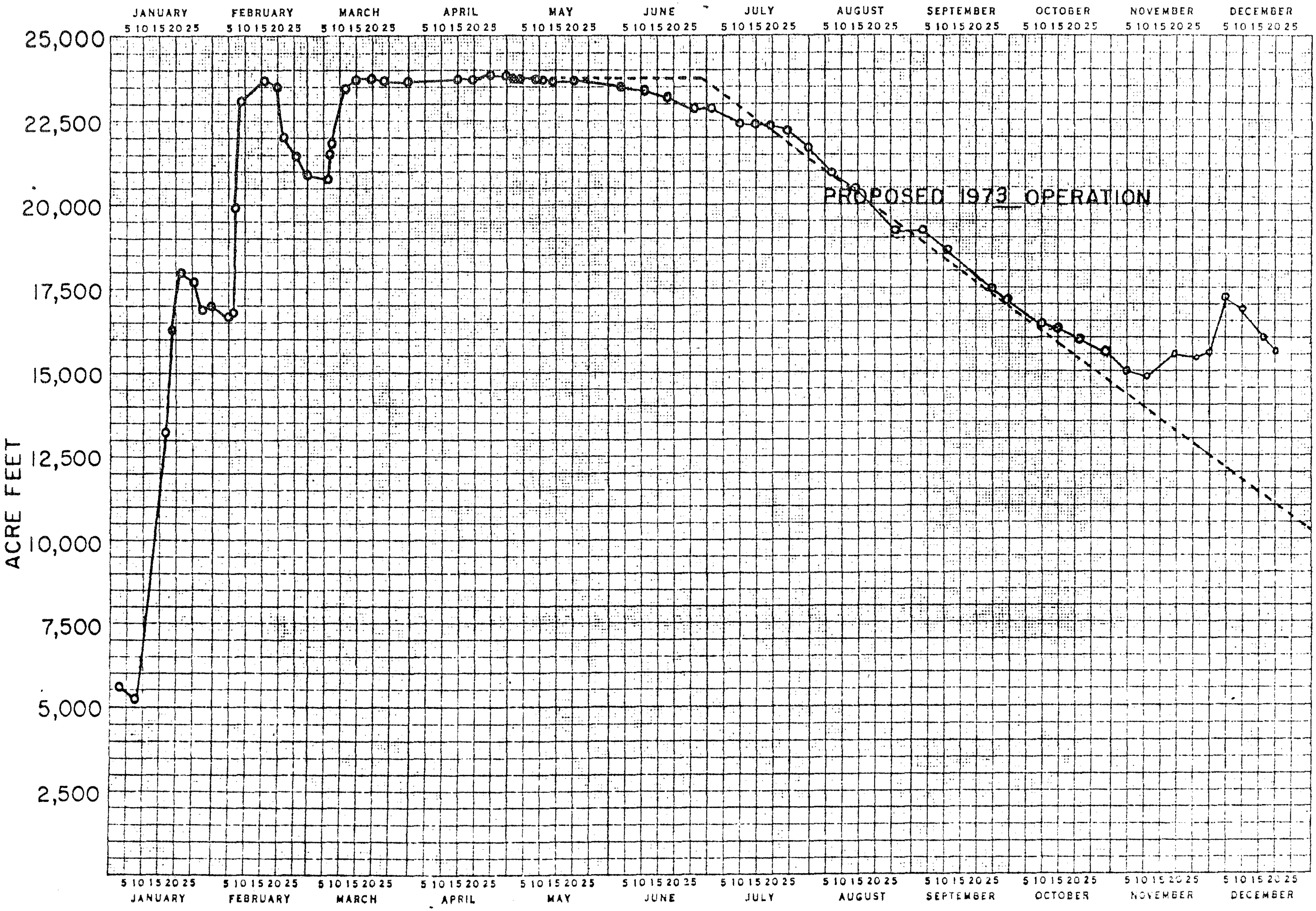
STORAGE IN COYOTE RESERVOIR

X 25 SION MADE IN
KEUFFEL & ESSER CO.



1974 STORAGE IN COYOTE RESERVOIR

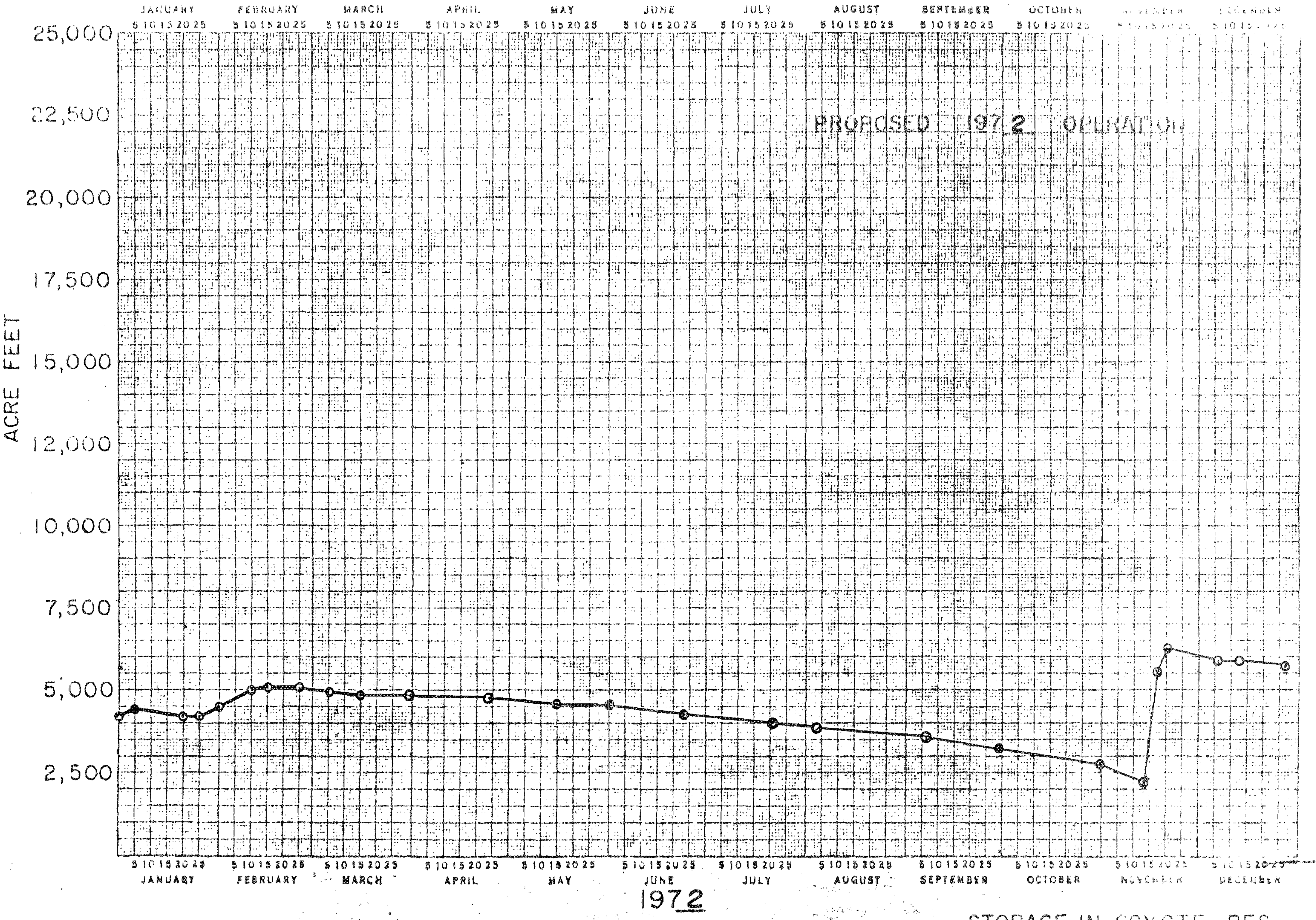
K+E 1 YEAR BY DAYS X 250 DIVISIONS 46 2[illegible] MADE IN U.S.A.
KEUFFEL & ESSER CO.



CAPACITY 23,700

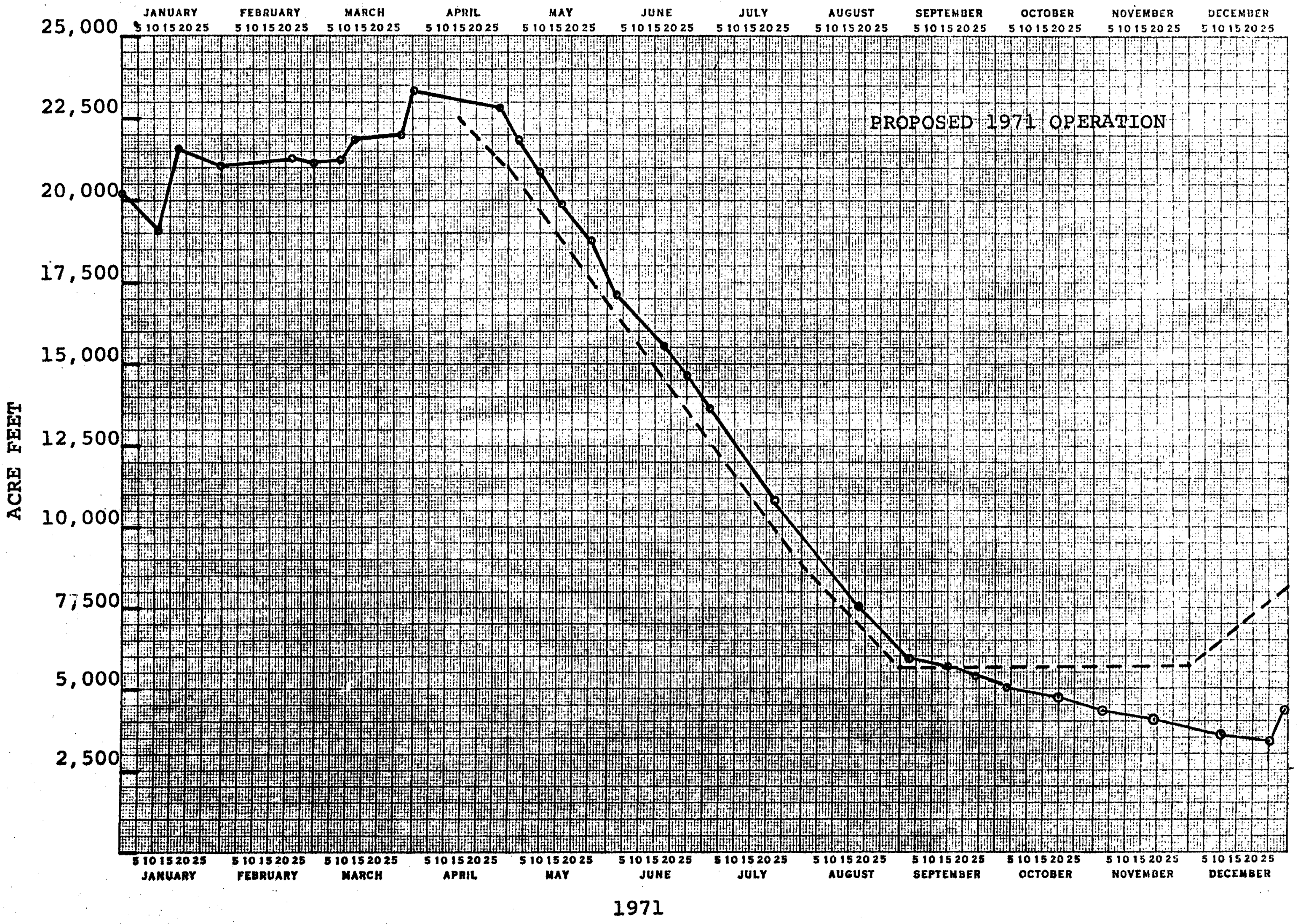
1973

STORAGE IN COYOTE RES



STORAGE IN COYOTE RES.

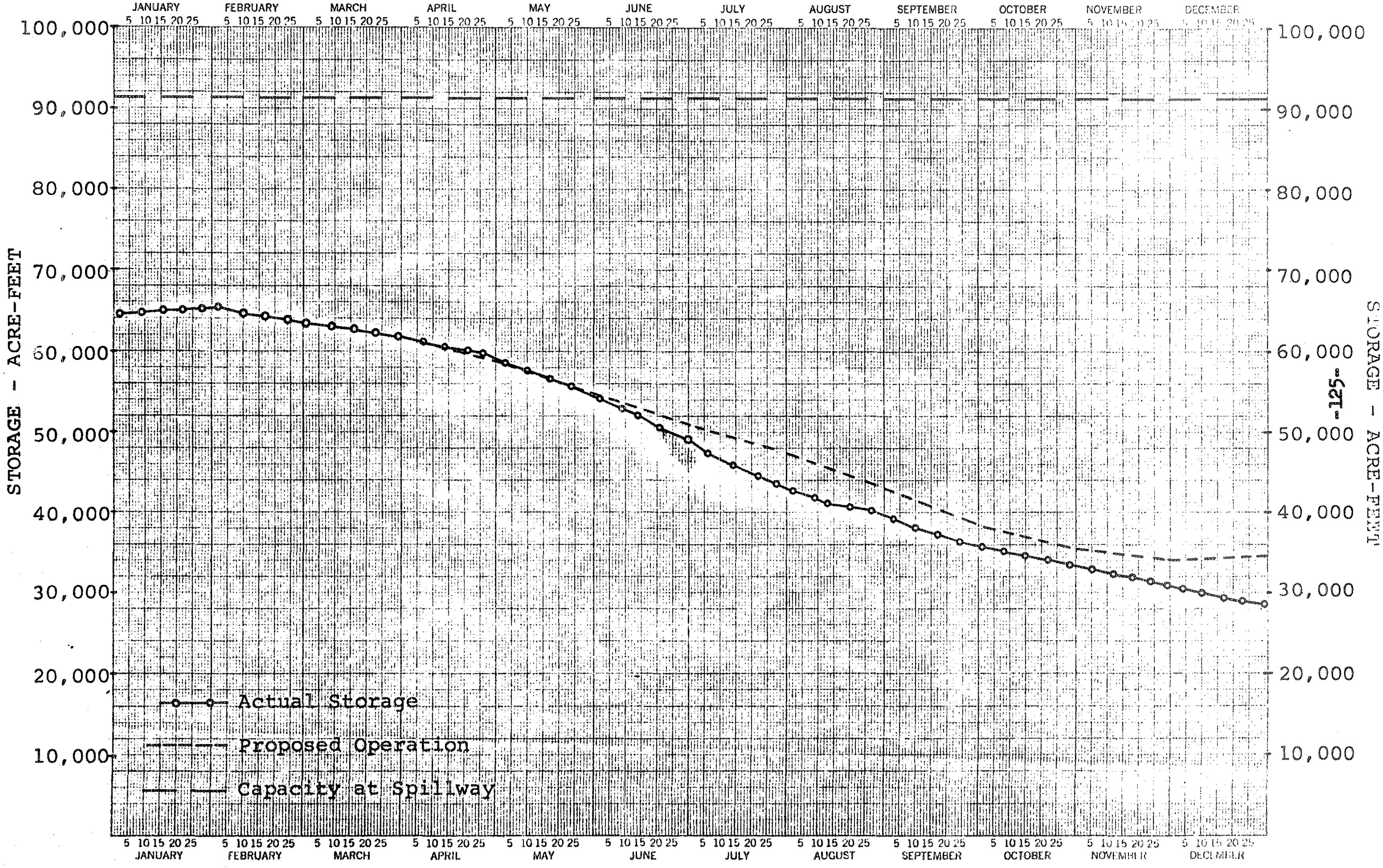
K+E 1 YEAR BY DAYS X 250 DIVISIONS 46 289 MADE IN U.S.A. KEUFFEL & ESSER CO.



STORAGE IN COYOTE RESERVOIR

K+E 1 YEAR BY DAYS X 250 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

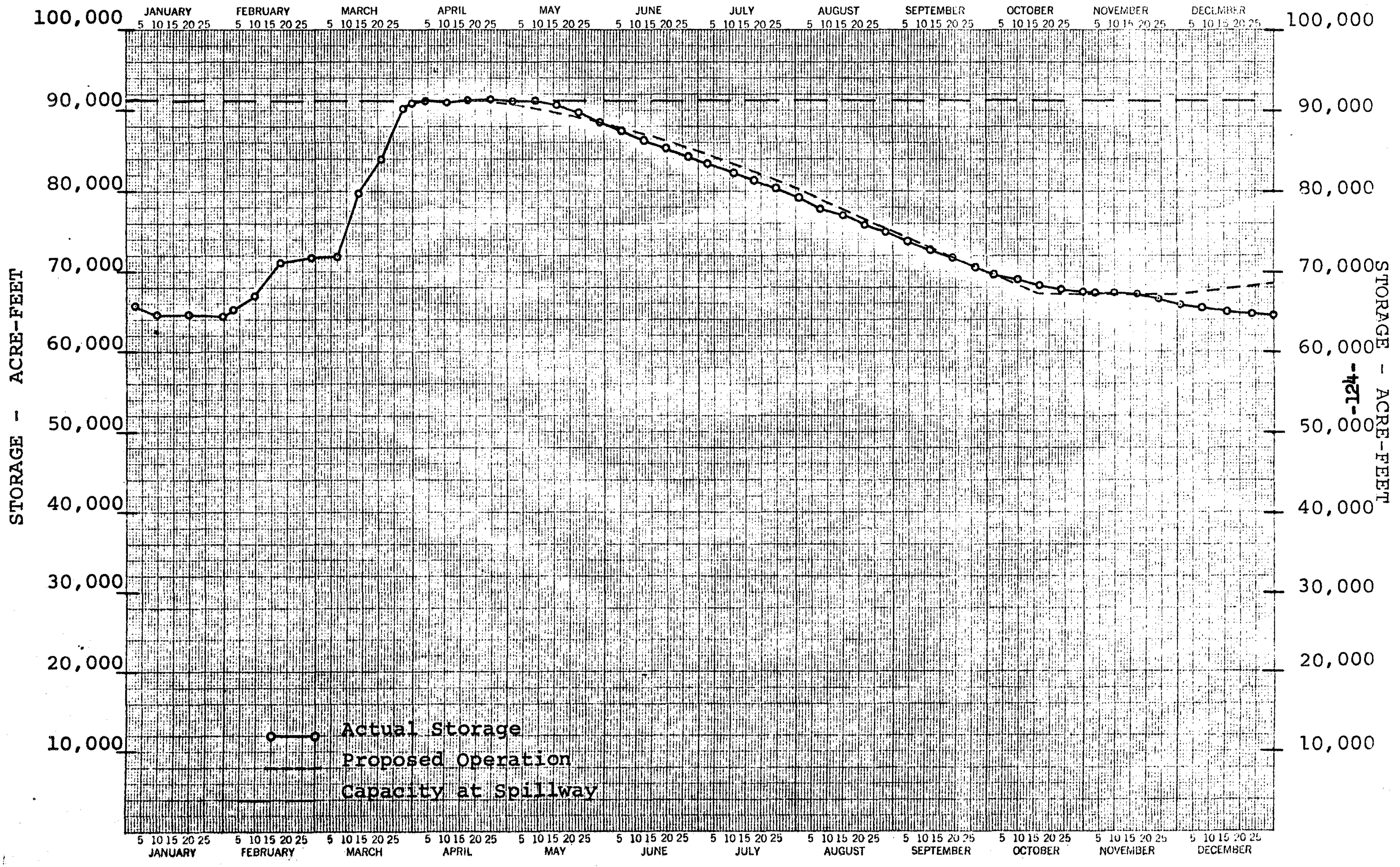
46 2893



CAPACITY 91,280 AF 1976 STORAGE IN ANDERSON RESERVOIR

K+E 1 YEAR BY DAYS X 250 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

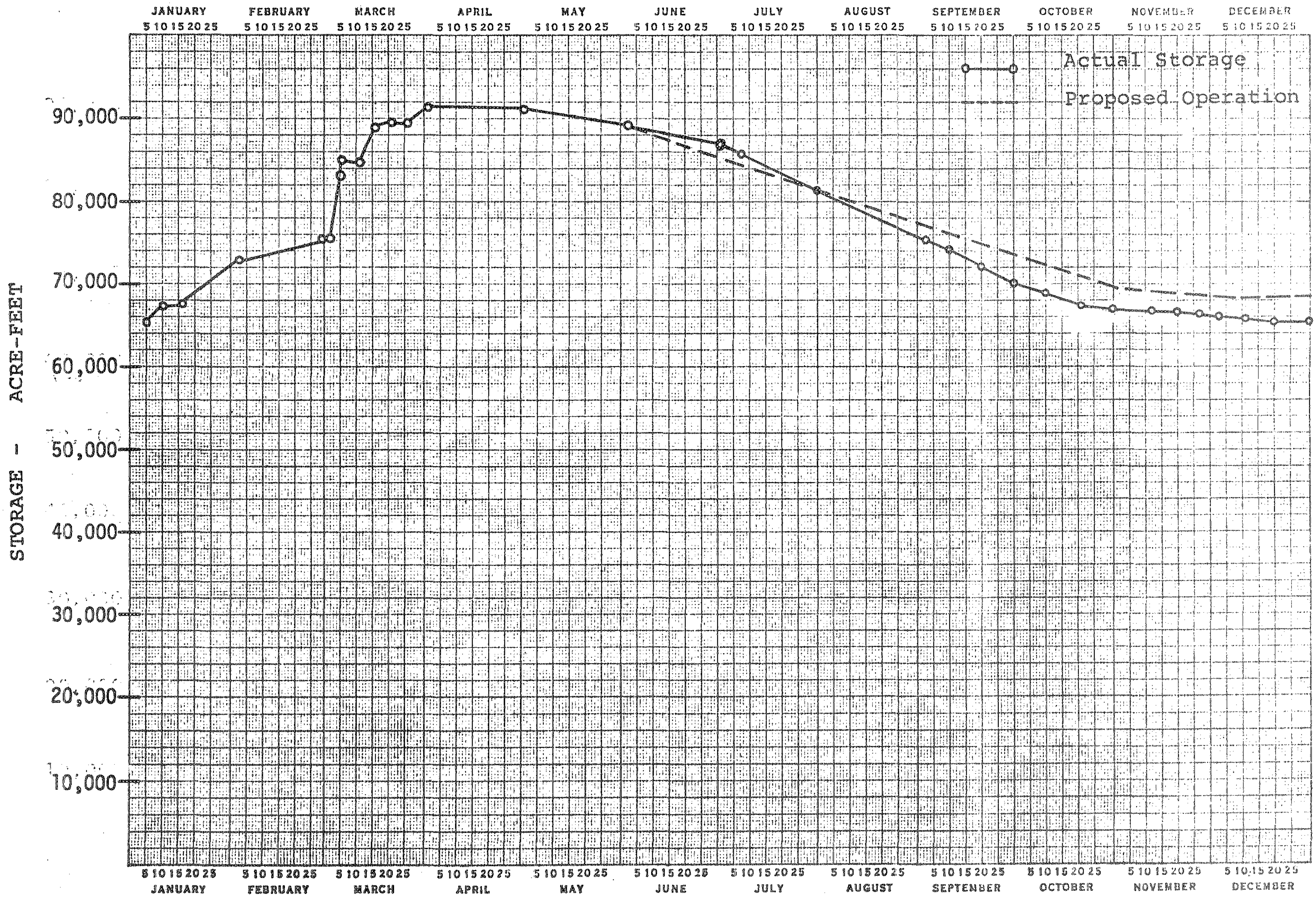
46 2893



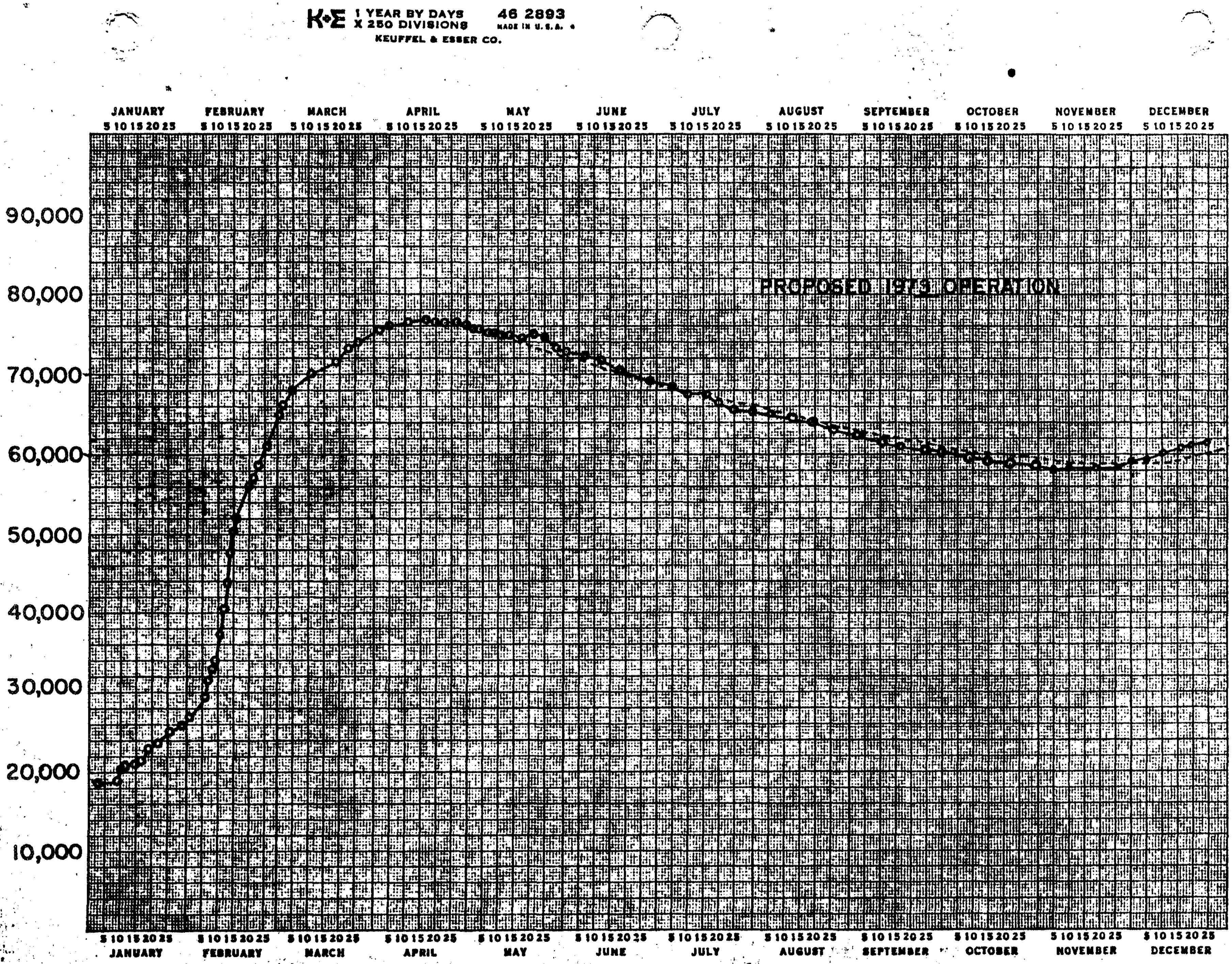
CAPACITY 91,280

1975

STORAGE IN ANDERSON RESERVOIR



1974 STORAGE IN ANDERSON RESERVOIR

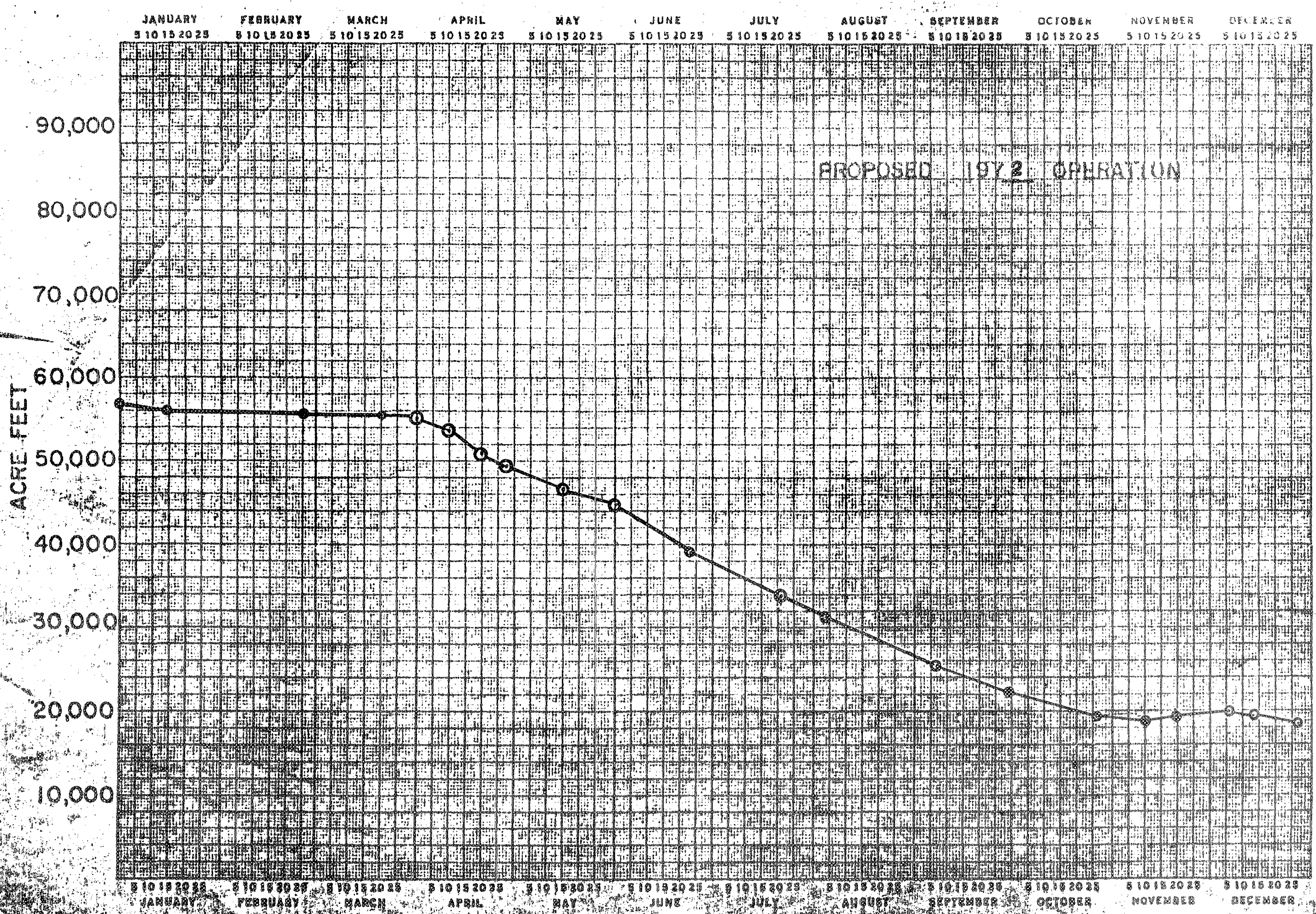


1973

CAPACITY 91,280

STORAGE IN ANDERSON RES.

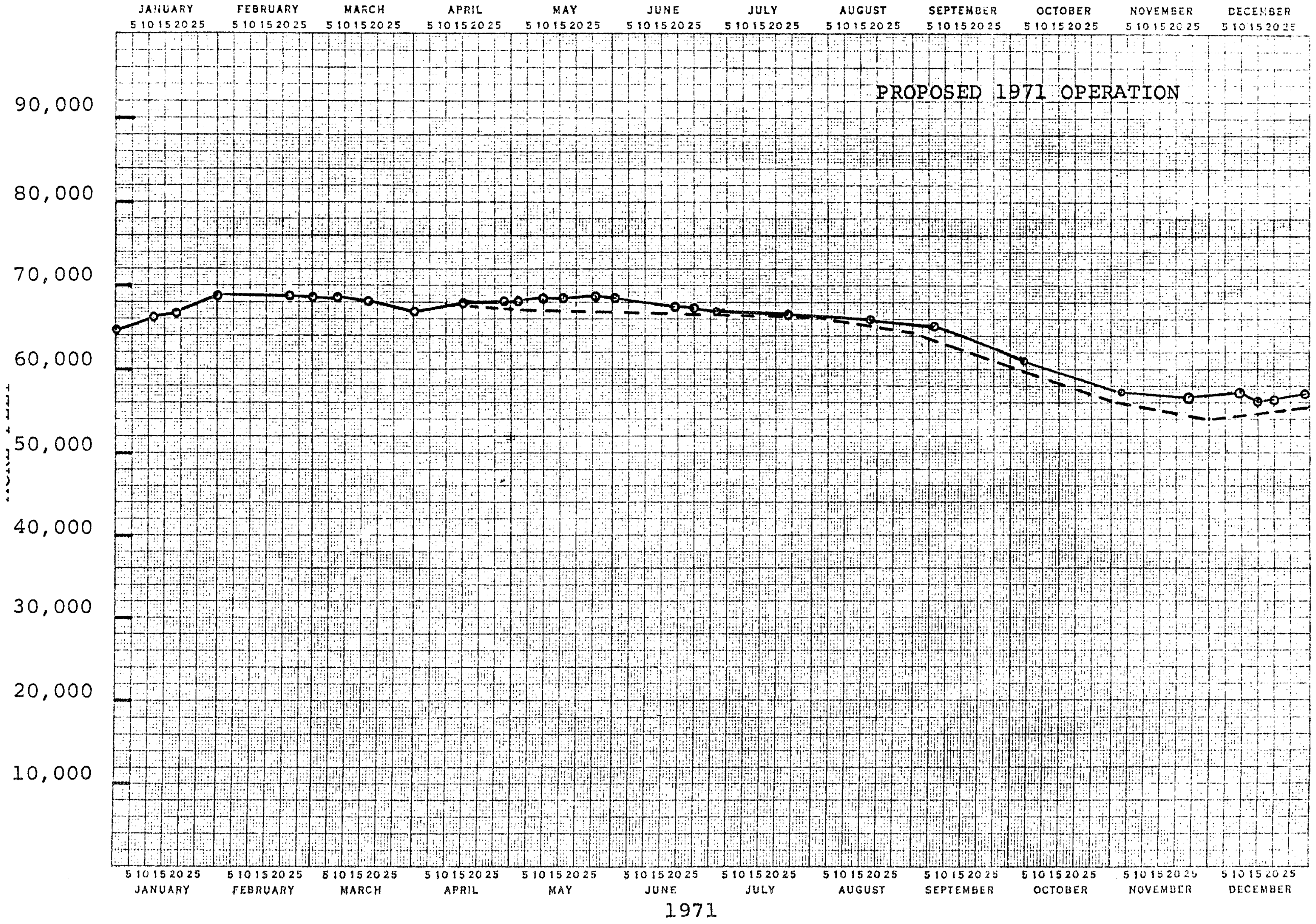
X 250 DIVISIONS
KEUFFEL & ESSER CO.



1972

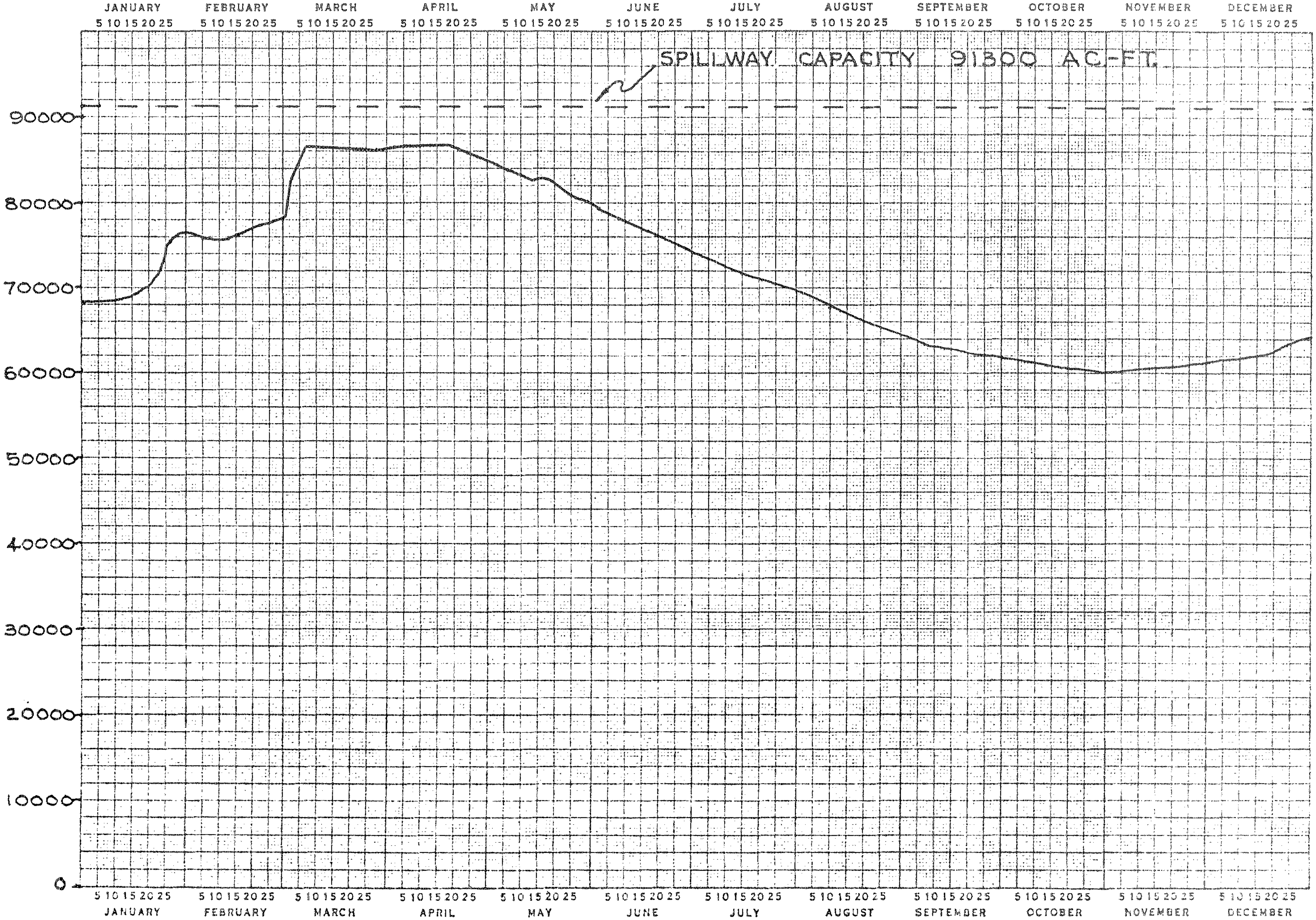
STORAGE IN ANDERSON RES.

K+E 1 YEAR BY DAYS X 250 DIVISIONS 46 2893 MADE IN U.S.A. KEUFFEL & ESSER CO



STORAGE IN ANDERSON RESERVOIR

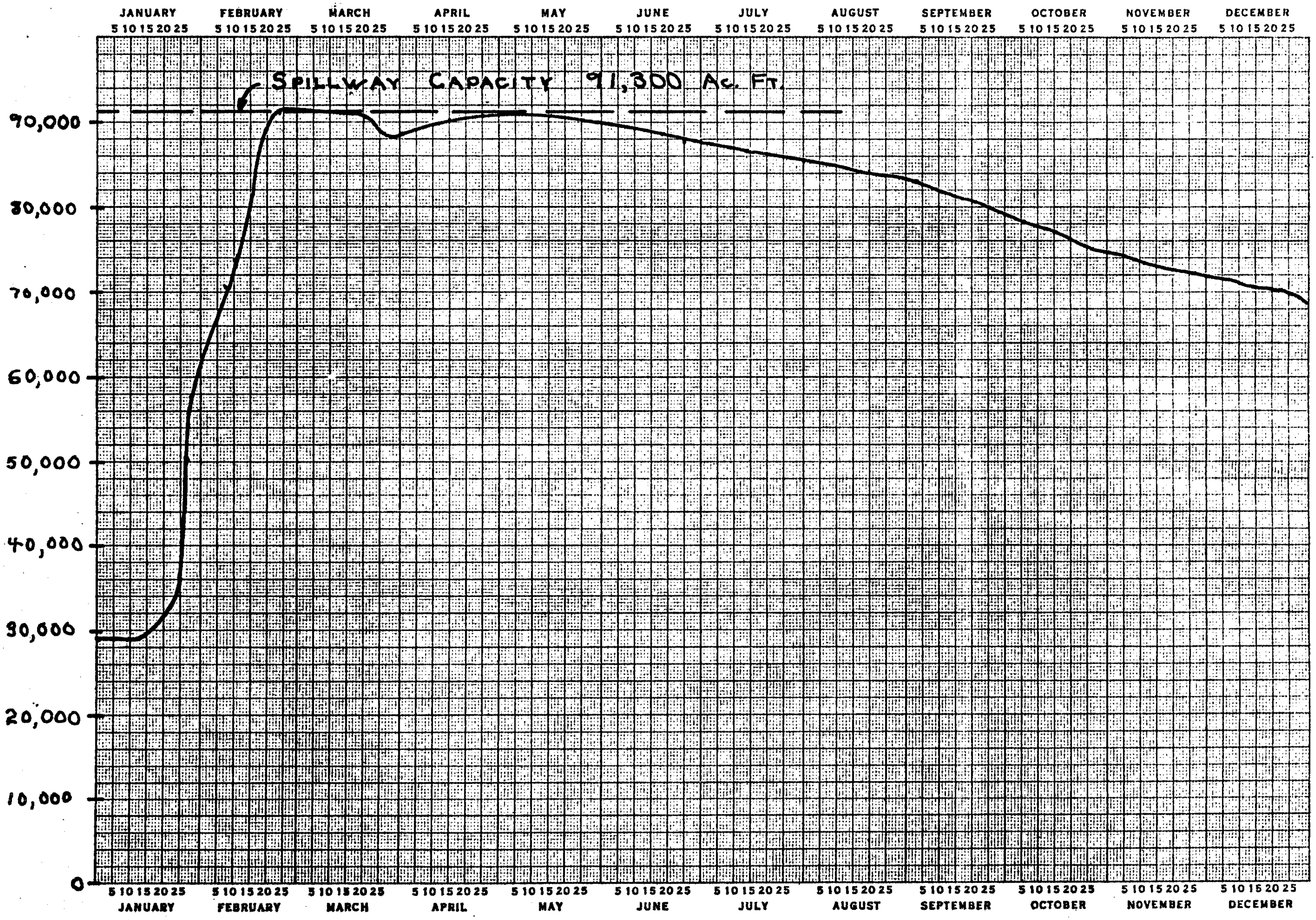
STORAGE IN ANDERSON 1970



1970

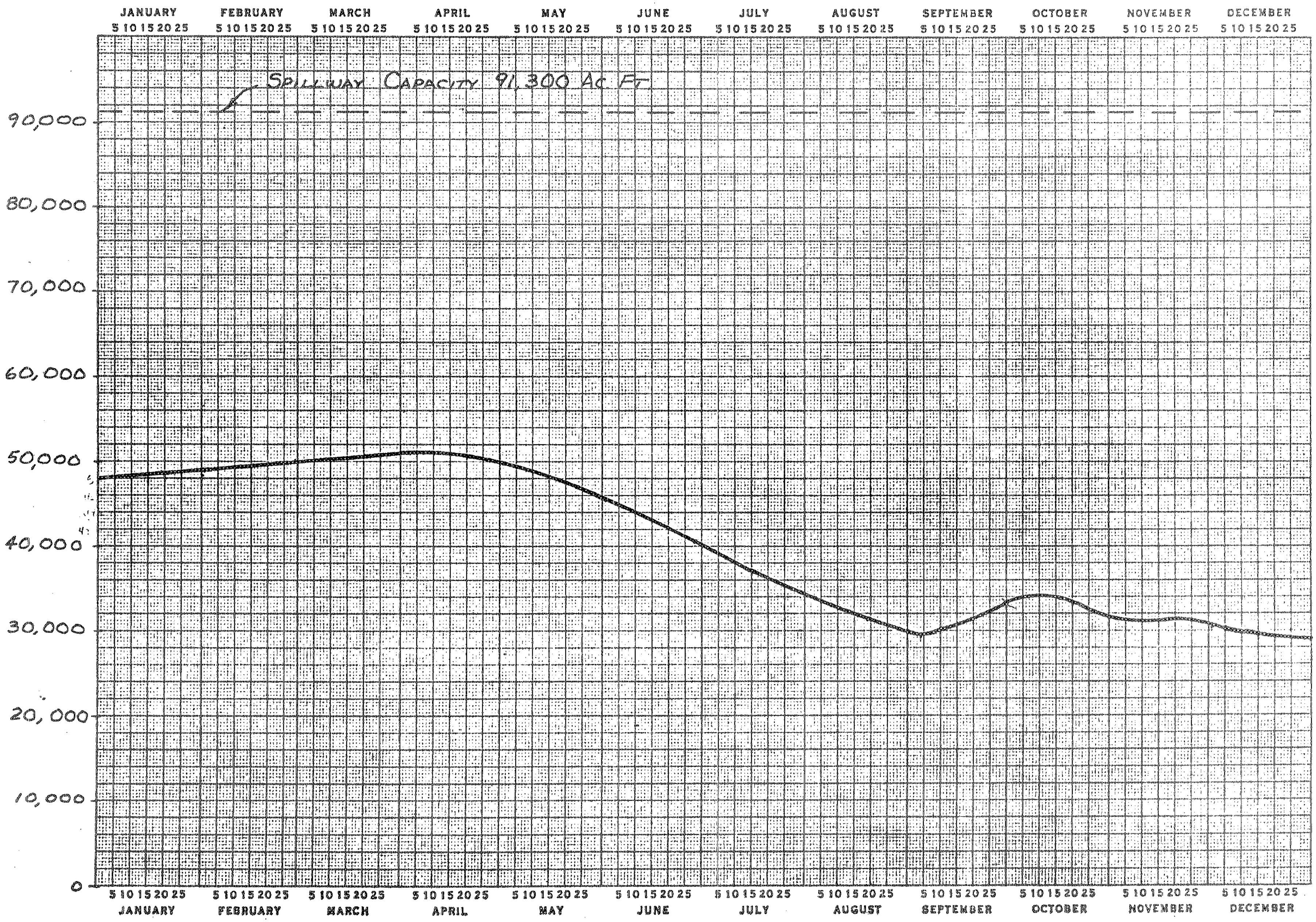
K+E 1 YEAR BY DAYS X 250 DIVISIONS 46 289 MADE IN U.S.
KEUFFEL & ESSER CO.

STORAGE IN ANDERSON 1969



K&E X 250 DIVISIONS MADE IN U.S.A.
KEUFFEL & ESSER CO.

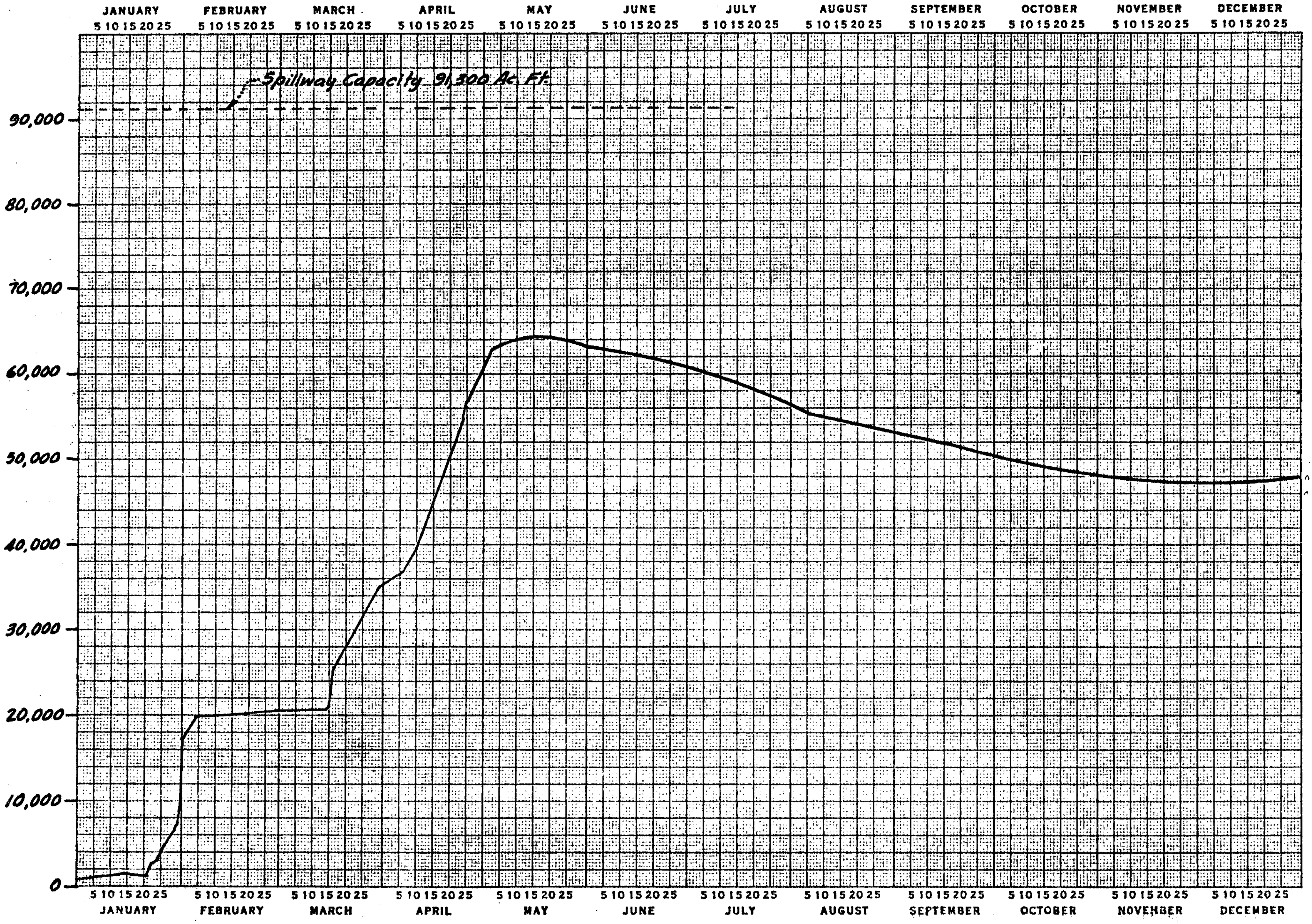
STORAGE IN ANDERSON 1968



1968

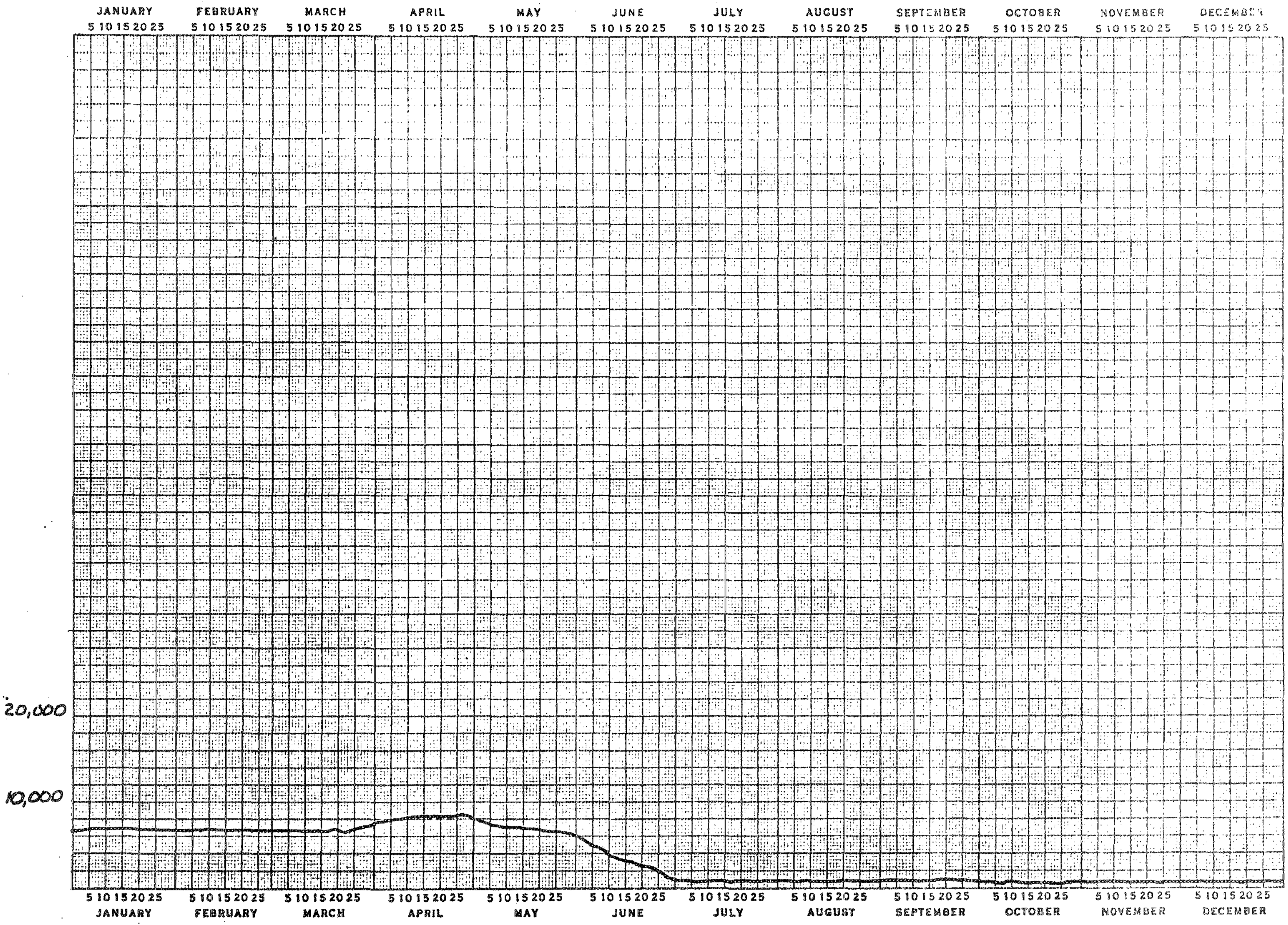
K+E 1 YEAR BY DAYS X 250 DIVISIONS 46 2893 MADE IN U.S.A. KEUFFEL & ESSER CO.

STORAGE IN ANDERSON 1967



KEUFFEL & ESSER CO.
CALENDAR YEAR

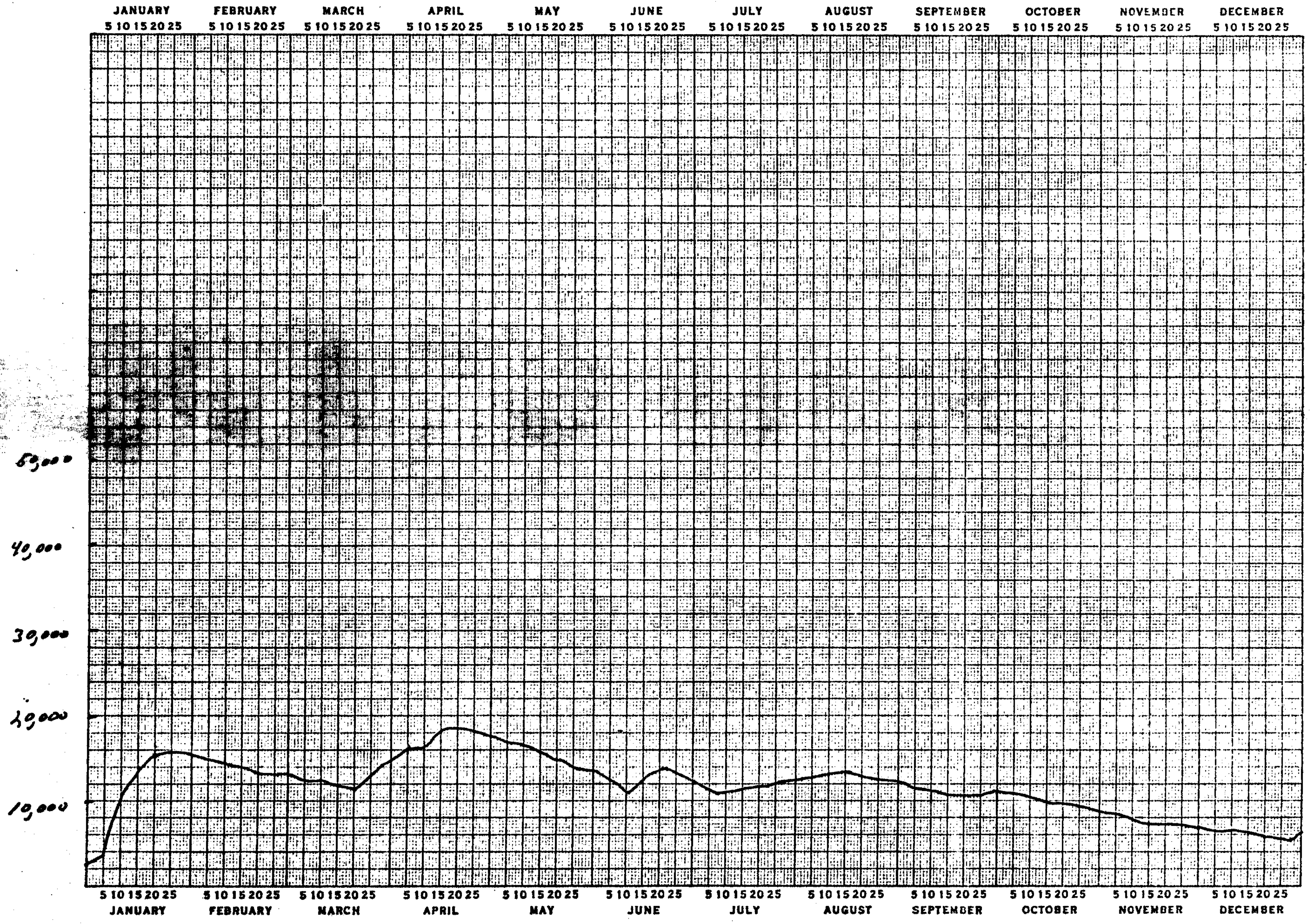
STORAGE IN ANDERSON RESERVOIR 1966



1966

K•E 1 YEAR BY DAYS X 250 DIVNS. 359-142
KEUFFEL & ESSER CO. MADE IN U. S. A.
CALENDAR YEAR

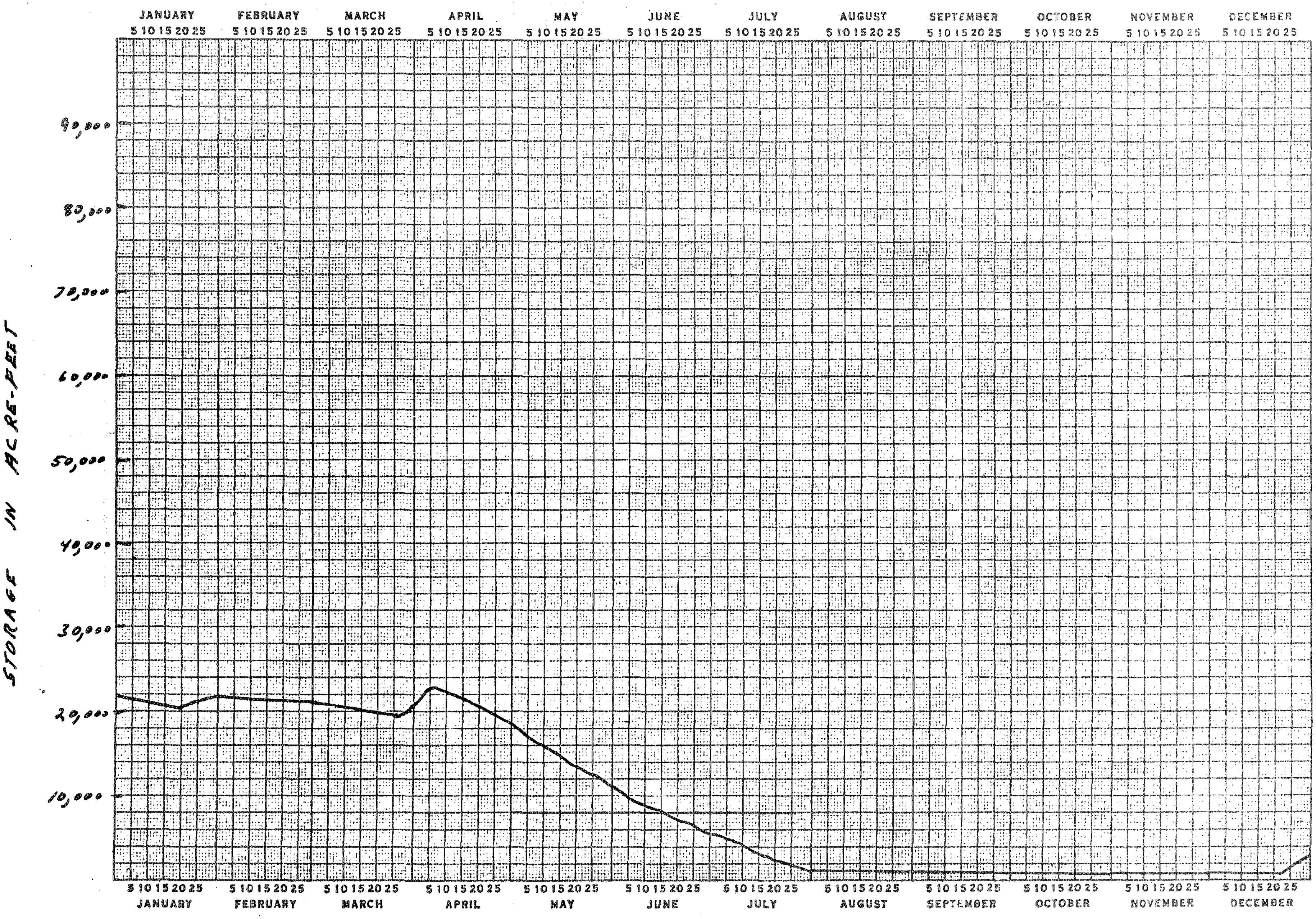
STORAGE IN ANDERSON RESERVOIR



1965

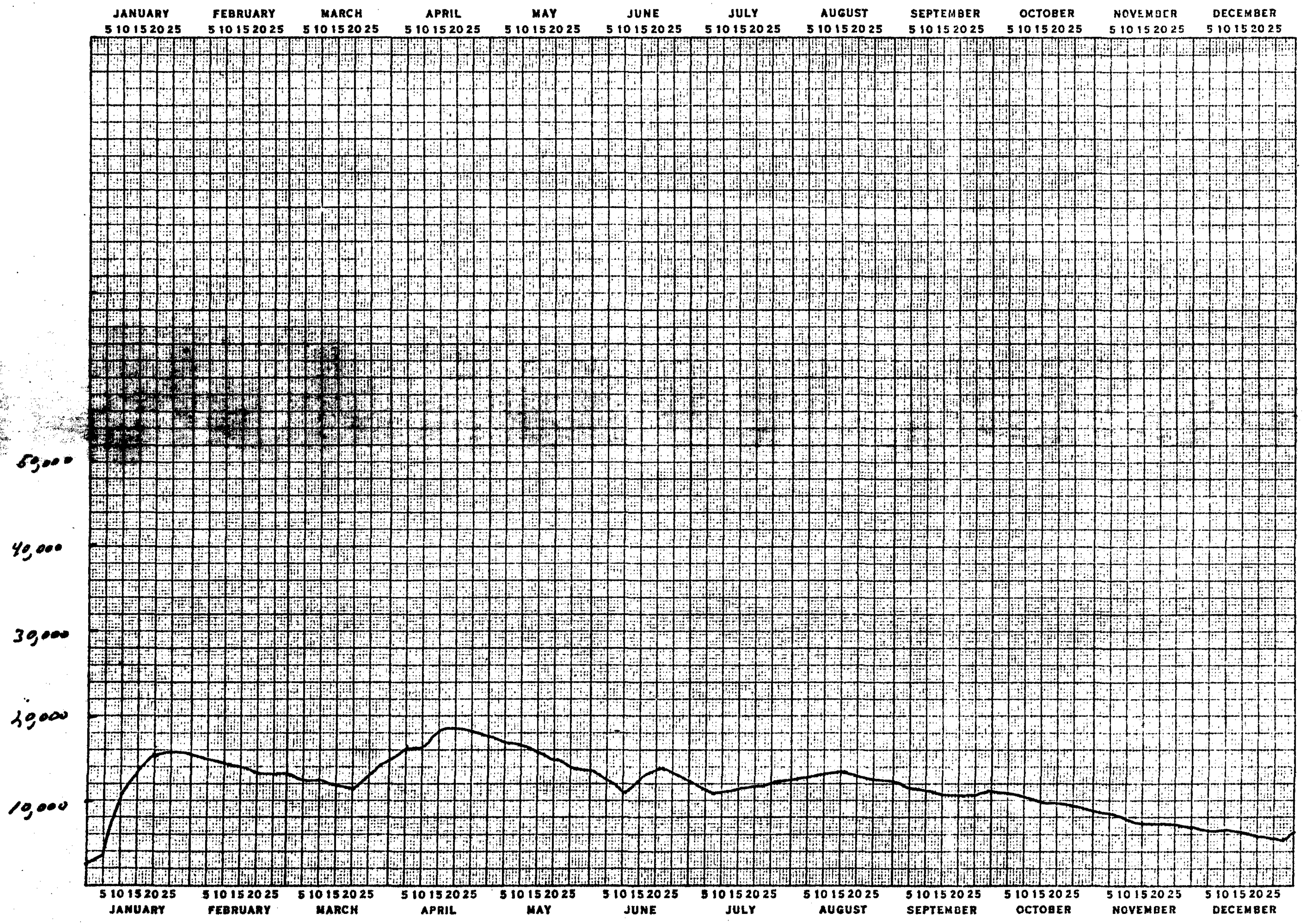
KEUFFEL & ESSER CO.
CALENDAR YEAR

STORAGE IN ANDERSON RESERVOIR



1964

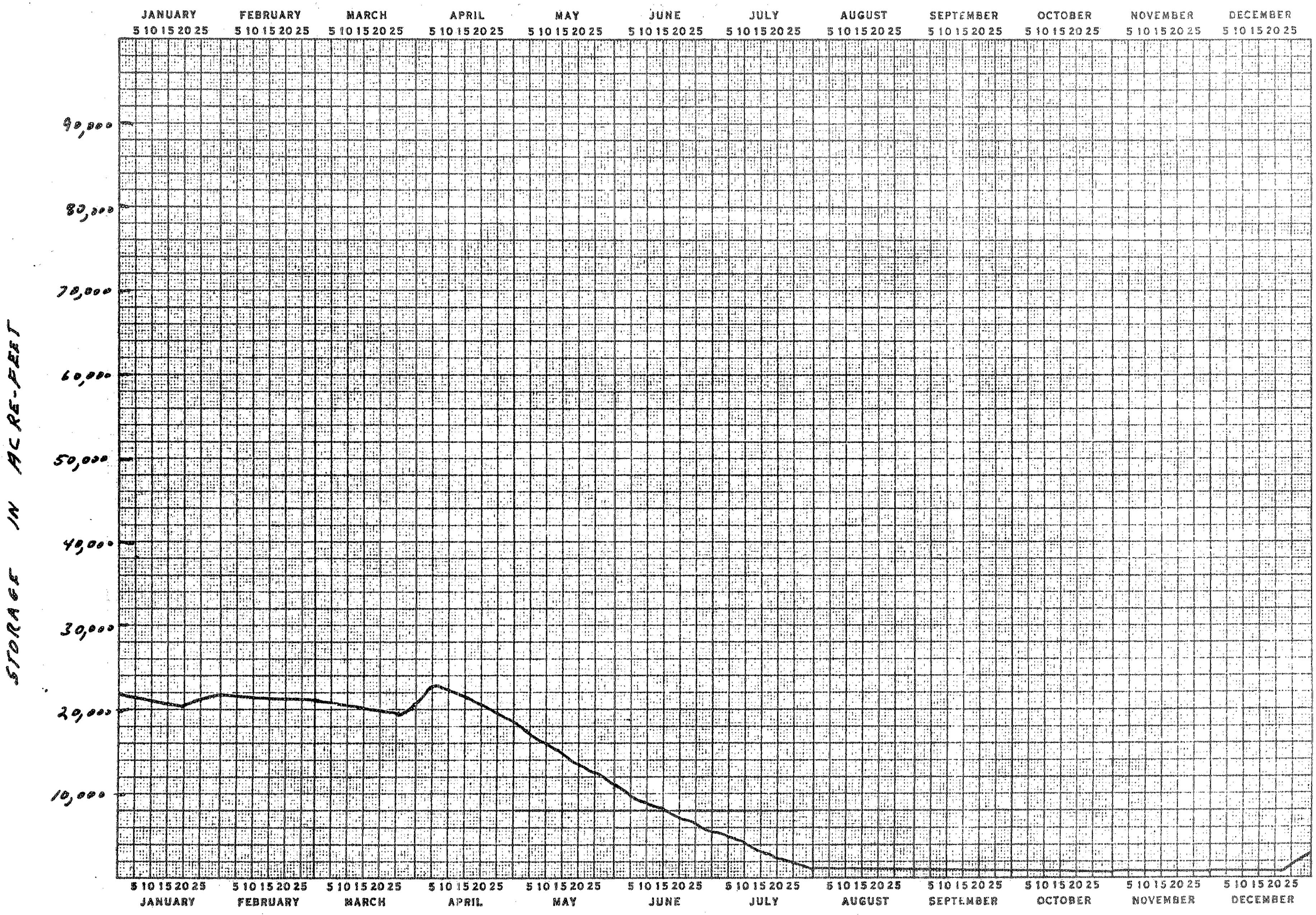
STORAGE IN ANDERSON RESERVOIR



1965

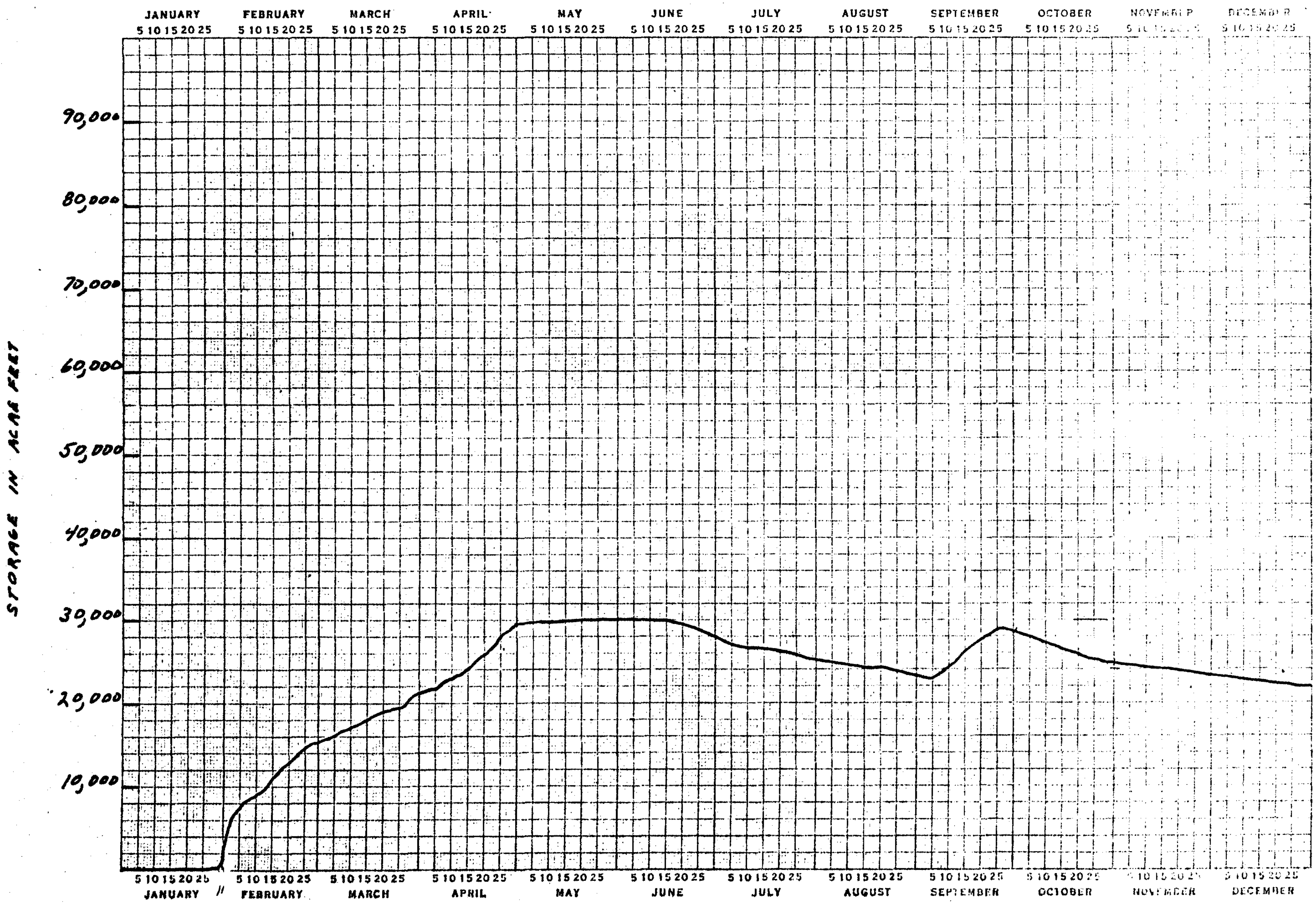
K&E KEUFFEL & ESSER CO.
CALENDAR YEAR

STORAGE IN ANDERSON RESERVOIR



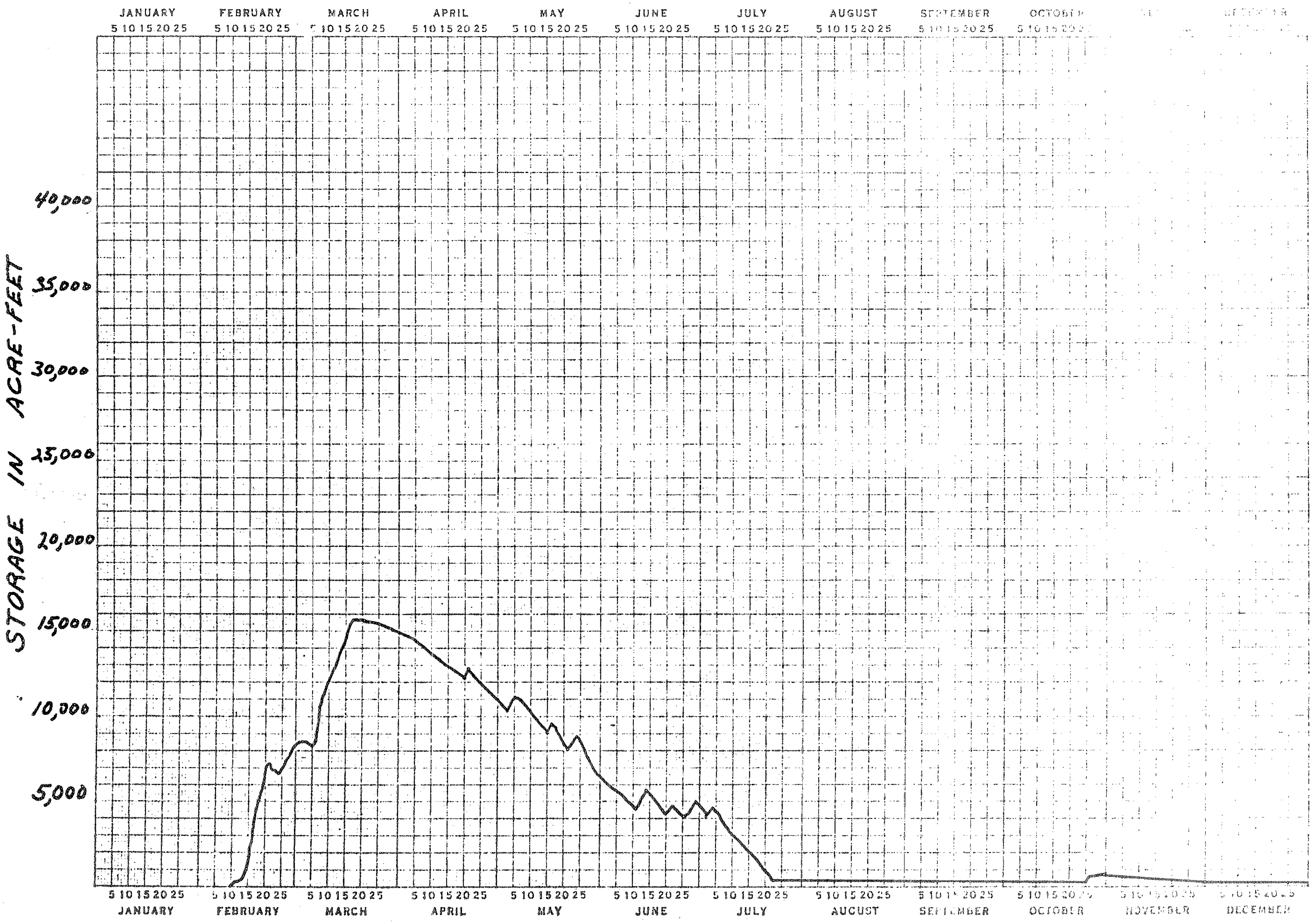
1964

STORAGE IN ANDERSON RESERVOIR



K+E 1 YEAR BY DAYS X 250 DIVNS.
KEUFFEL & ESSER CO.
CALENDAR YEAR
MADE IN U.S.A.

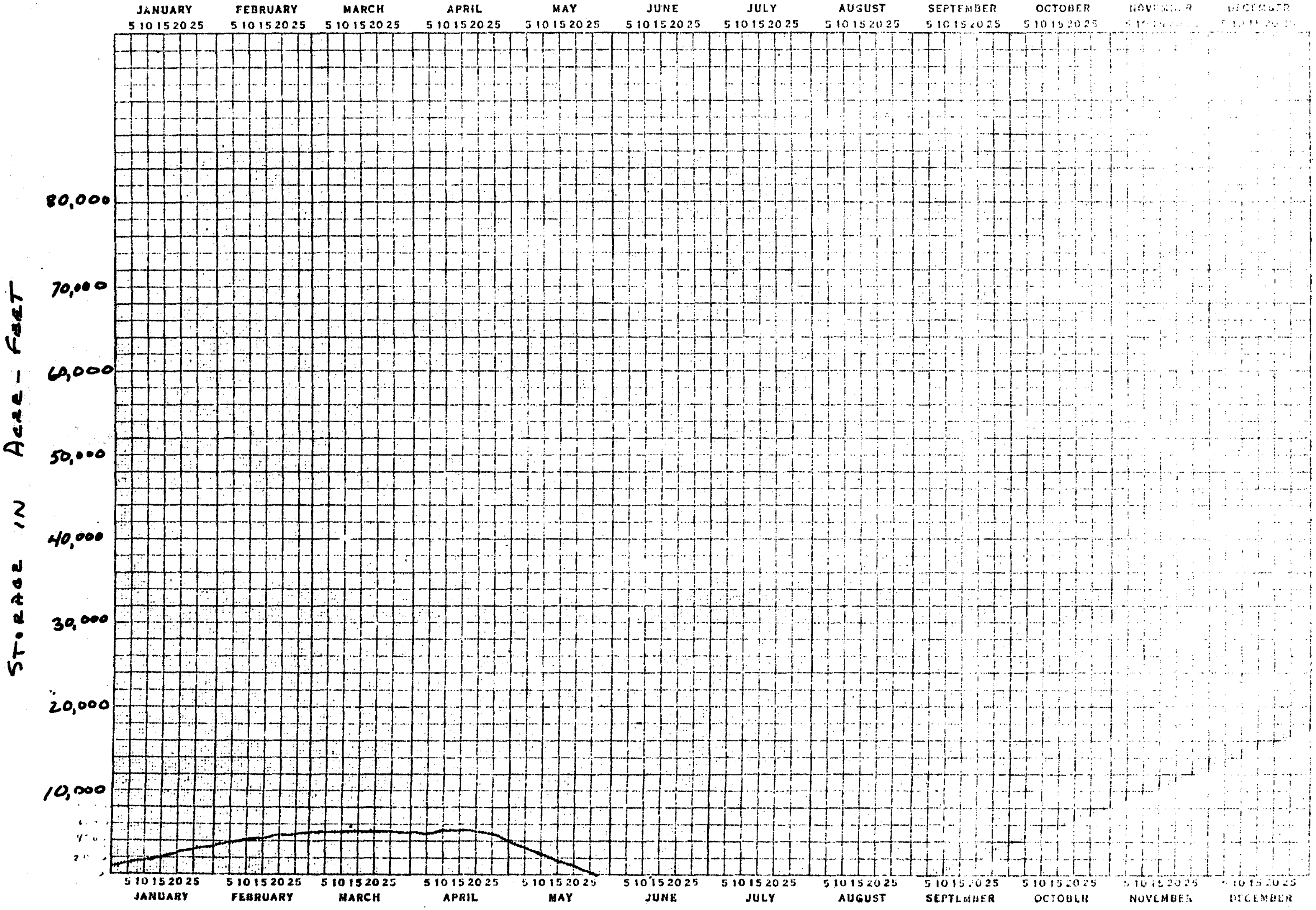
STORAGE IN ANDERSON RESERVOIR



1962

K+E 1 YEAR BY DAYS X 250 DIVNS. 359
KEUFFEL & ESSER CO.
CALENDAR YEAR

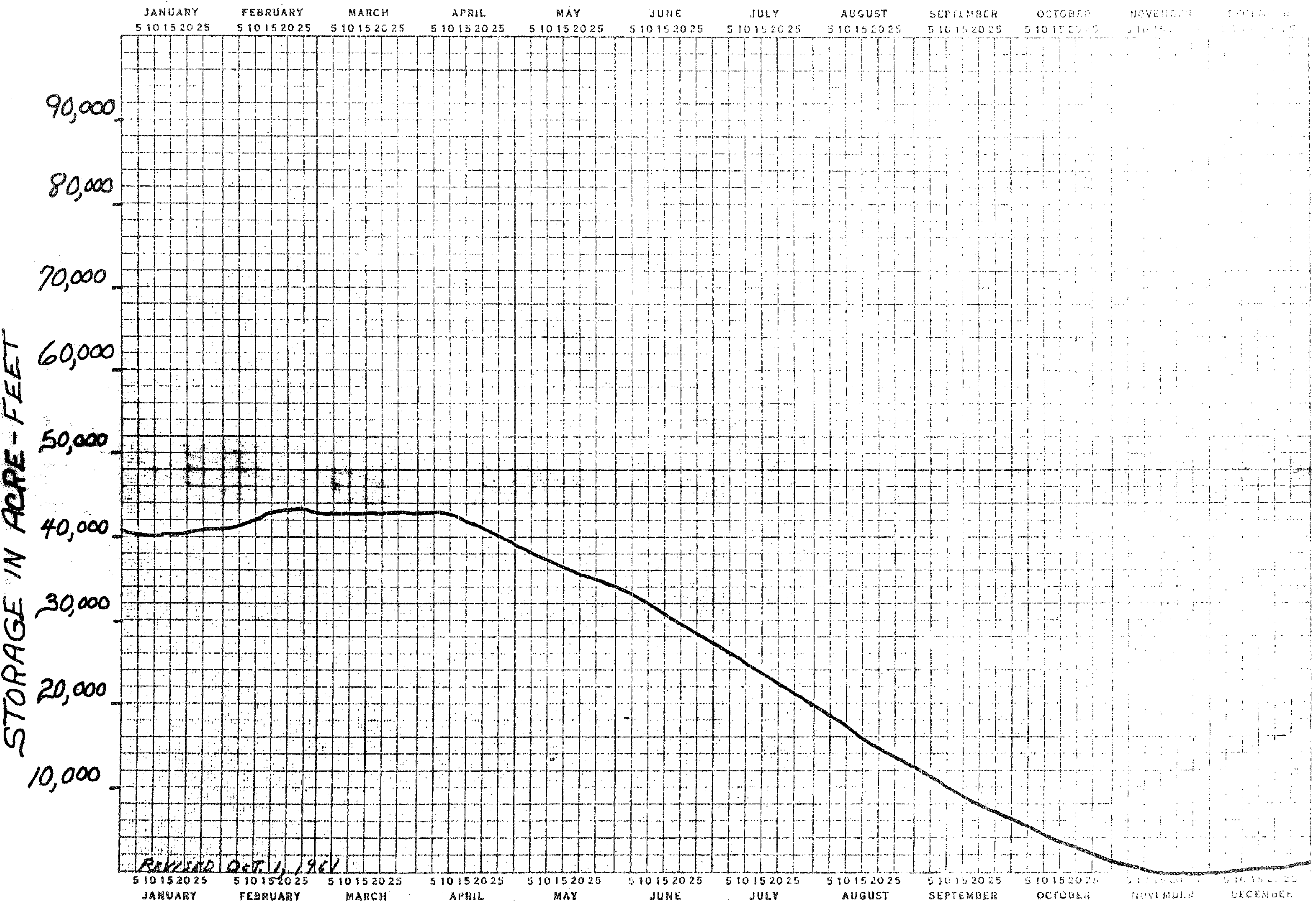
STORAGE IN ANDERSON RESERVOIR — 1961



SANTA CLARA VALLEY
WATER CONSERVATION

KEUFFEL & ESSER CO.
CALENDAR YEAR

STORAGE IN ANDERSON RESERVOIR – 1960



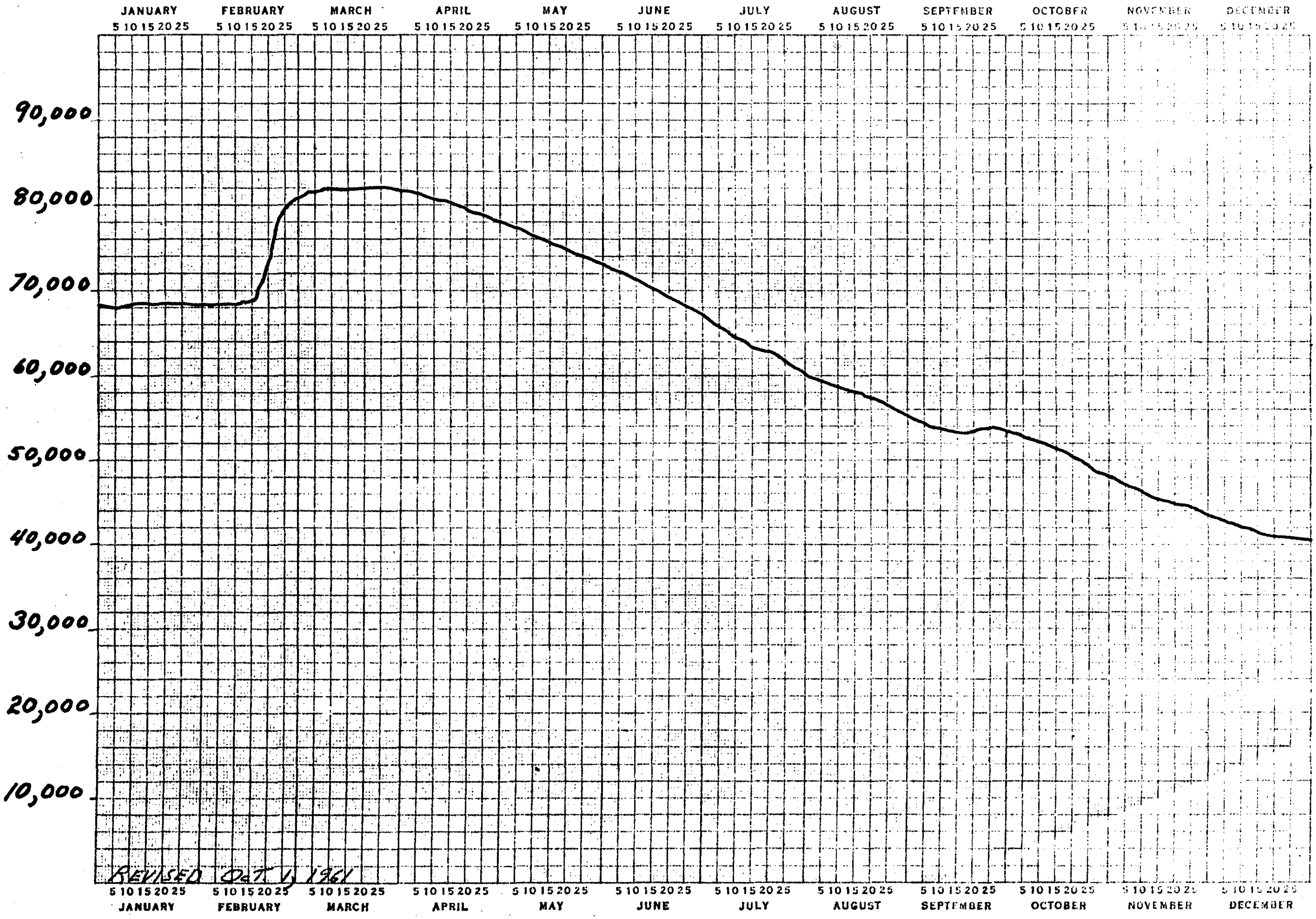
REVISED OCT. 1, 1961

SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT

1960

K+E 1 YEAR BY DAYS X 250 DIVNS. 359
KEUFFEL & ESSER CO. MADE IN
CALENDAR YEAR

STORAGE IN ANDERSON RESERVOIR - 1959



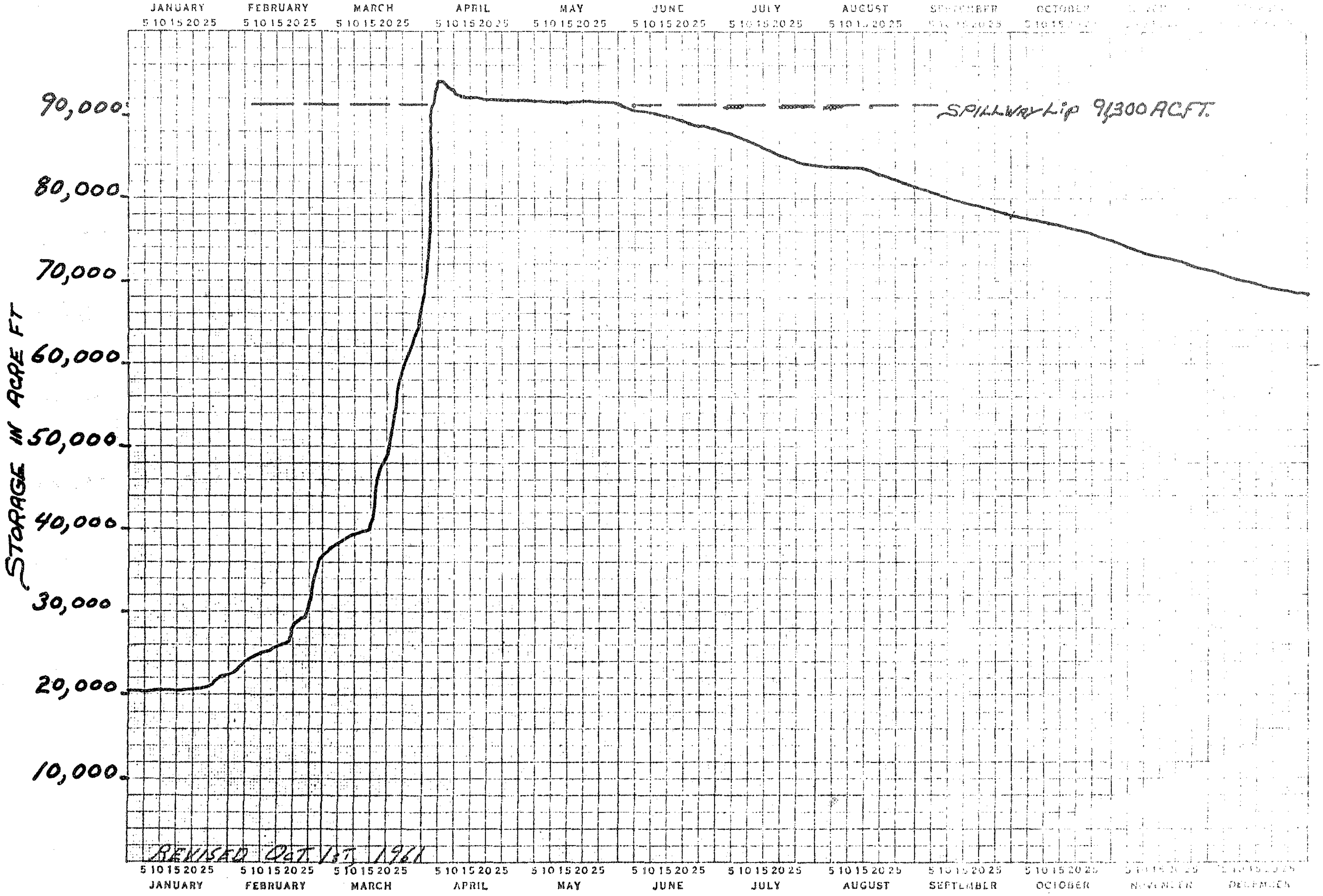
REVISED OCT 1, 1961

SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT

195

1 YEAR BY DAYS X 350 DIVNS. 359-133
KEUFFEL & ESSER CO. MADE IN U.S.A.
CALENDAR YEAR

STORAGE IN ANDERSON RESERVOIR — 1958

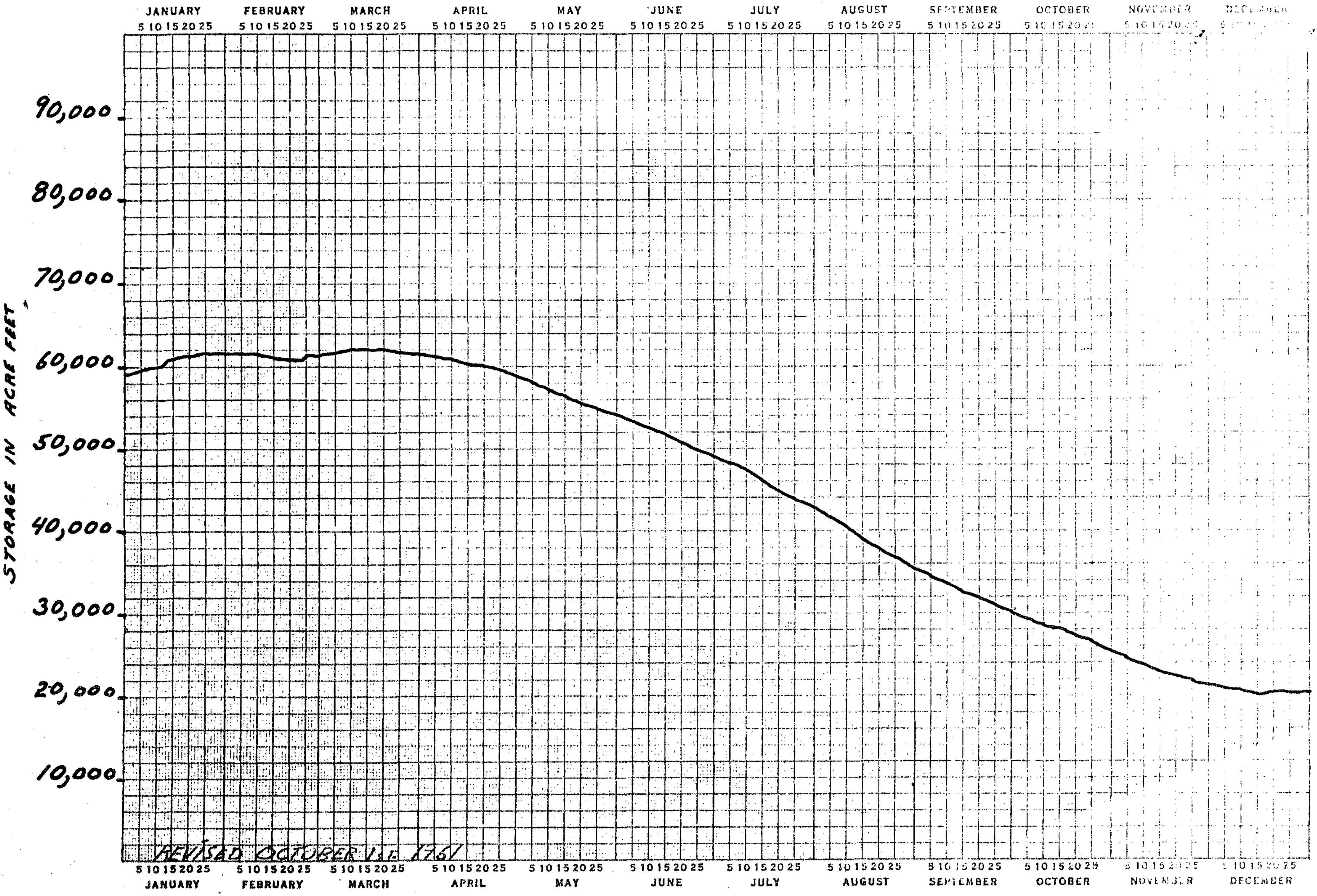


1958

SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT

K+E 1 YEAR BY DAYS X 250 DIVNS.
KEUFFEL & ESSER CO.
CALENDAR YEAR
35
MADE IN U.S.A.

STORAGE IN ANDERSON RESERVOIR - 1957

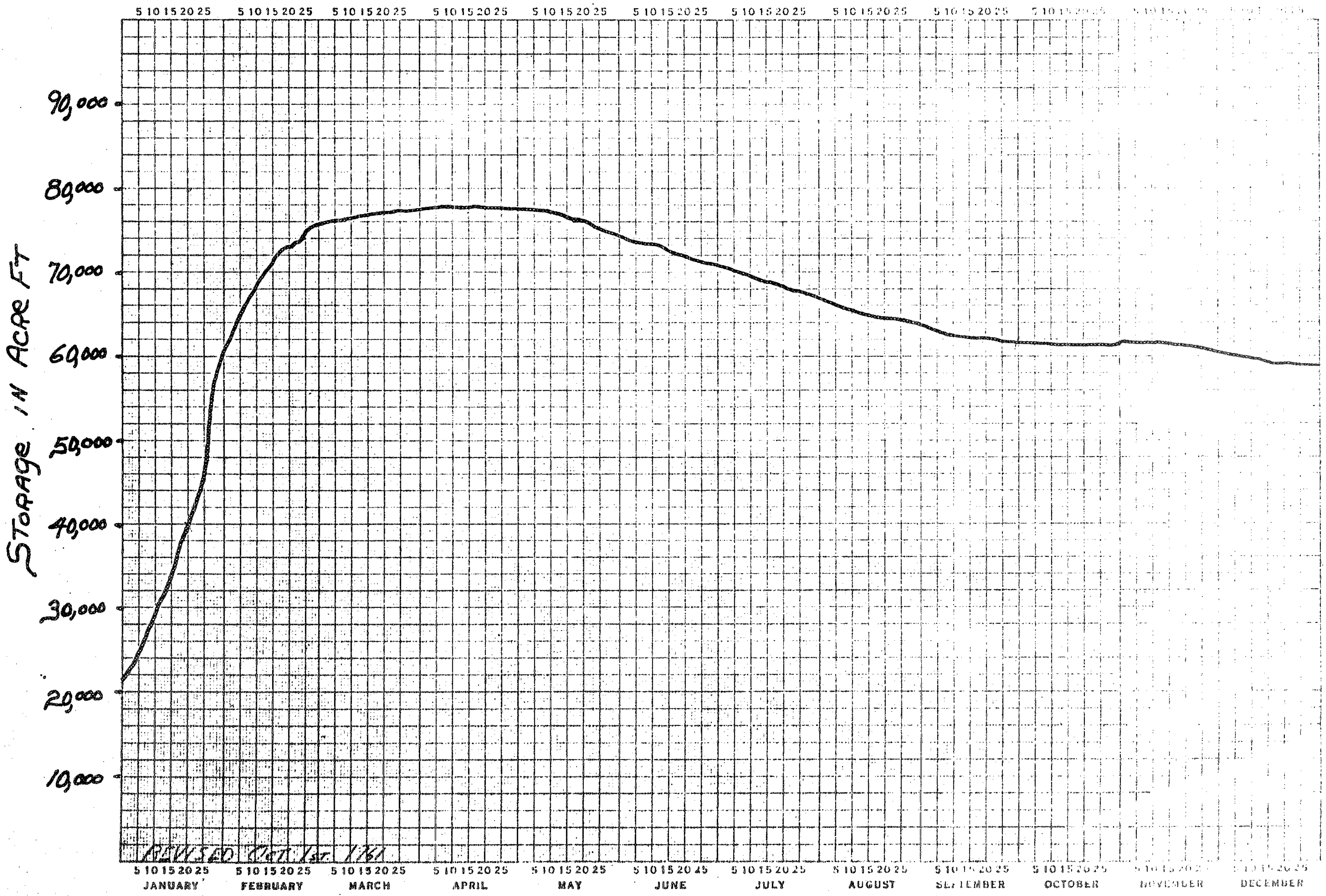


REVISED OCTOBER 1st 1961

**SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT**

K+E YEAR BY DAYS X 250 DIVS.
KEUFFEL & ESSER CO.
CALENDAR YEAR
MADE IN U.S.A.

STORAGE IN LEROY ANDERSON RESERVOIR 1956

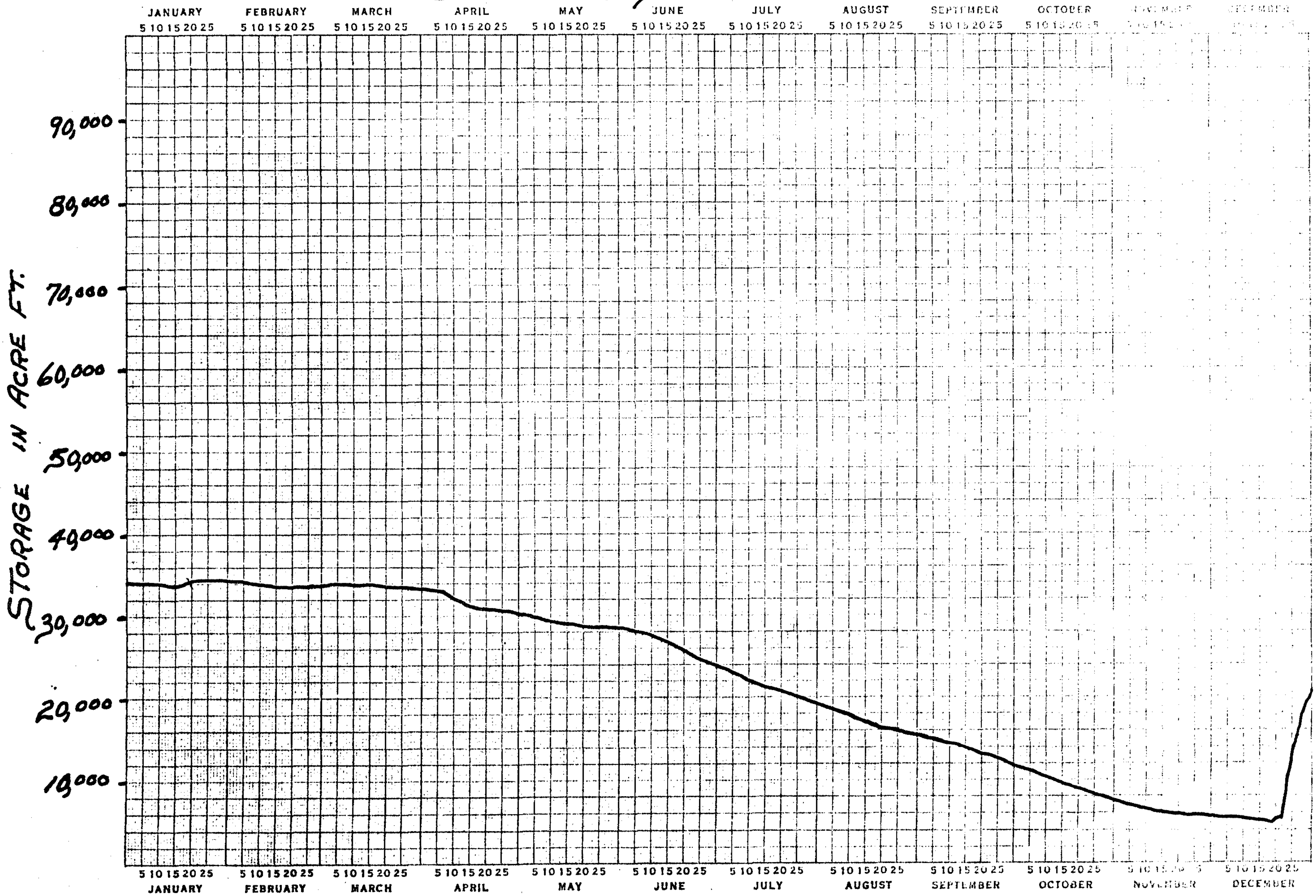


SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT

1956

K+E 1 YEAR BY DAYS X 250 DIVNS. 359-142
KEUFFEL & ESSER CO. MADE IN U.S.A.
CALENDAR YEAR

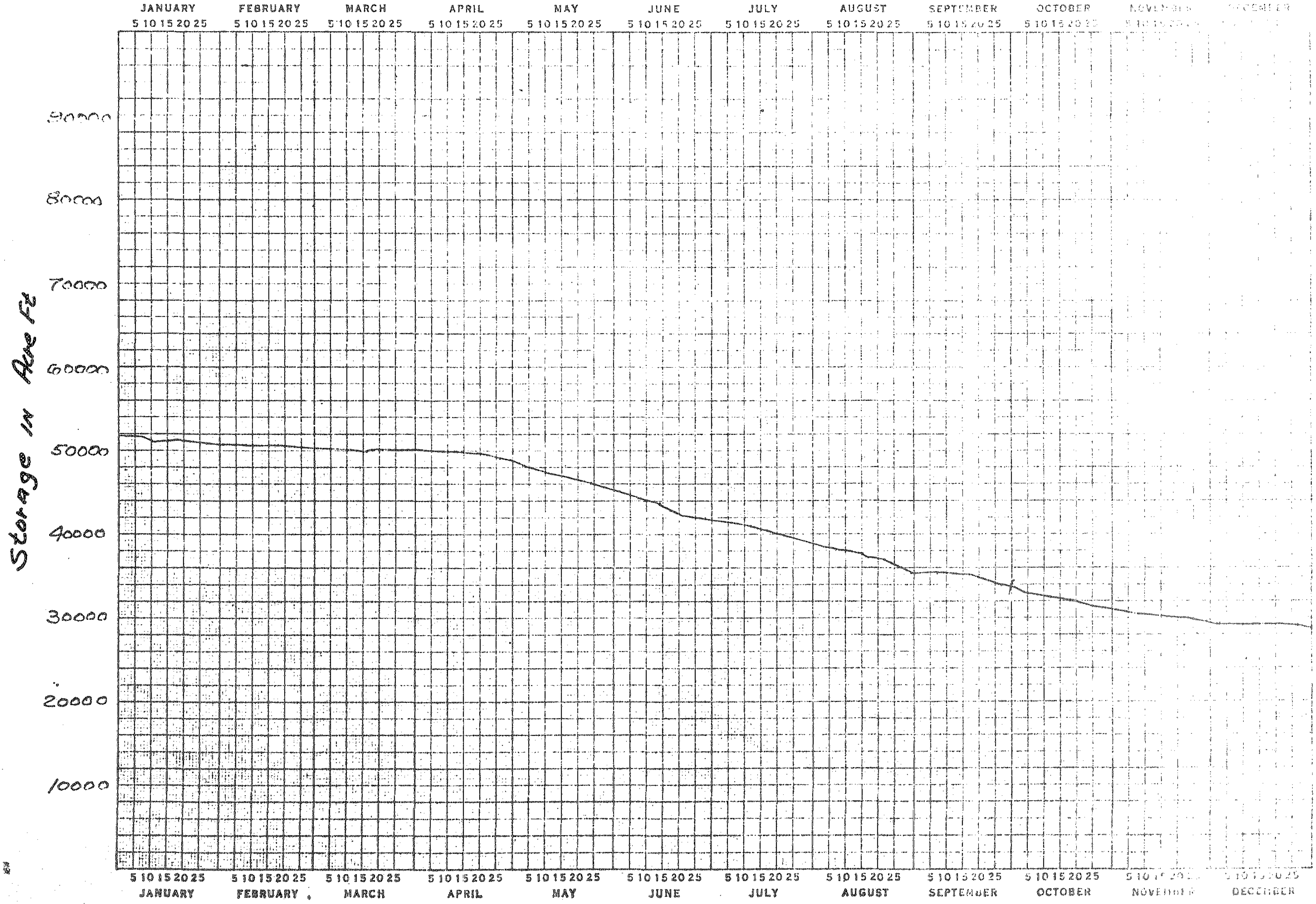
STORAGE IN LEROY ANDERSON RESERVOIR 1955



SANTA CLARA VALLEY

K+E 1 YEAR BY DAYS X 250 DIVNS. 359
KEUFFEL & ESSER CO. MADE IN U.S.A.
CALENDAR YEAR

STORAGE IN LEROY ANDERSON RESERVOIR 1954

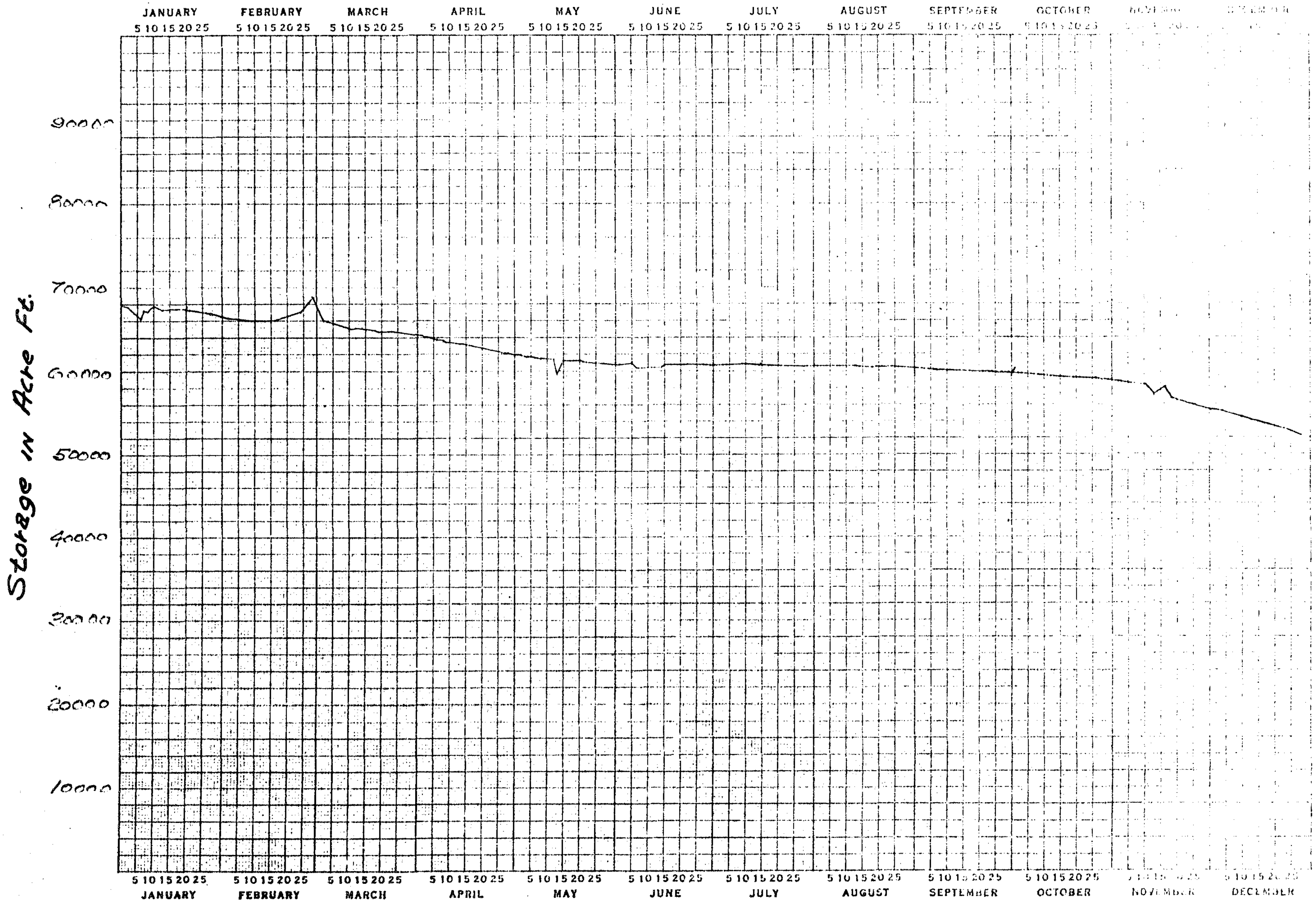


SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT

1954

K&E 1 YEAR BY DAYS X 250 DIVNS. 359
KEUFFEL & ESSER CO. MADE IN U.S.A.
CALENDAR YEAR

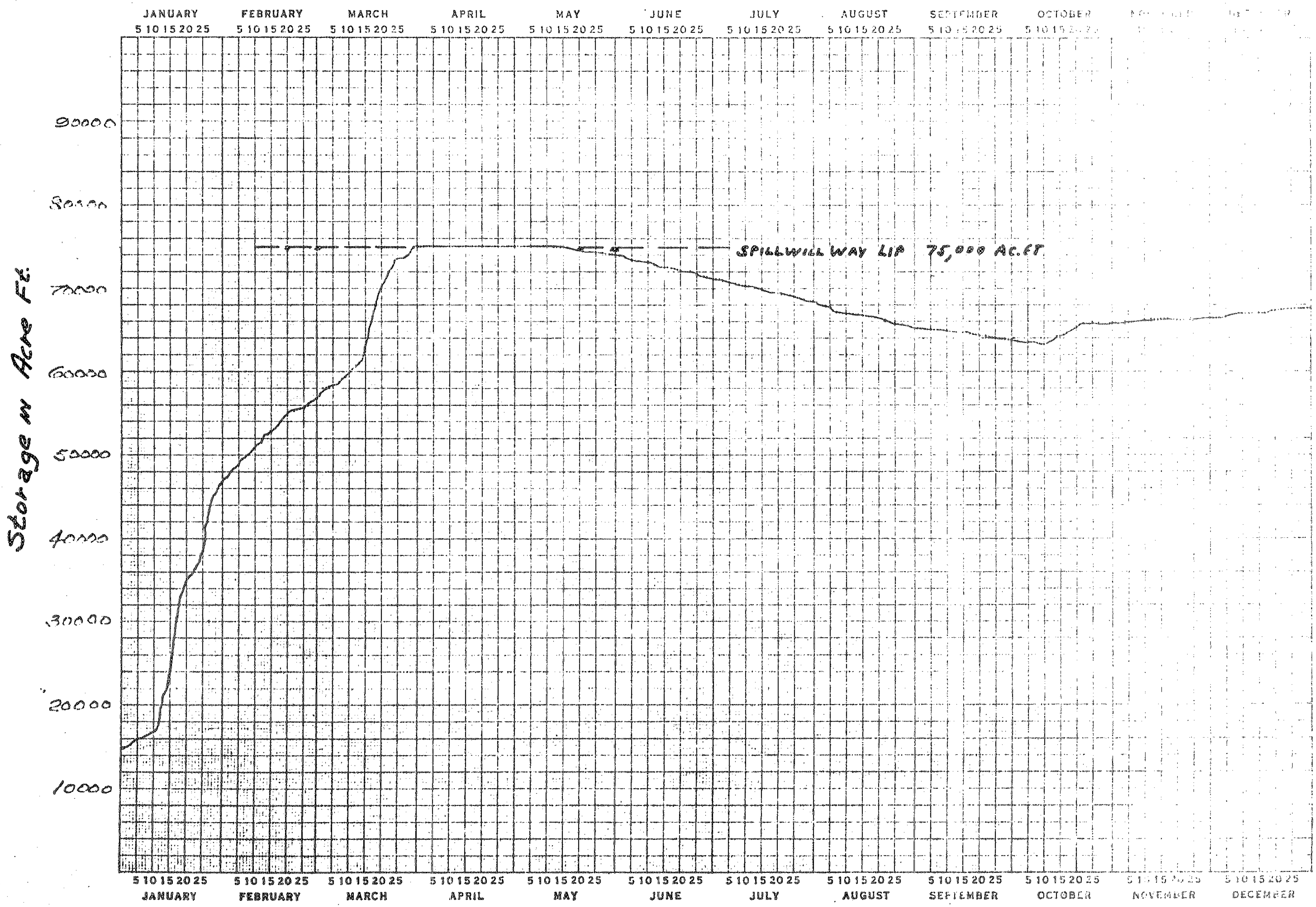
STORAGE IN LEROY ANDERSON RESERVOIR 1953



SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT

K+E 1 YEAR BY DAYS X 250 DIVNS.
KEUFFEL & ESSER CO.
CALENDAR YEAR
35

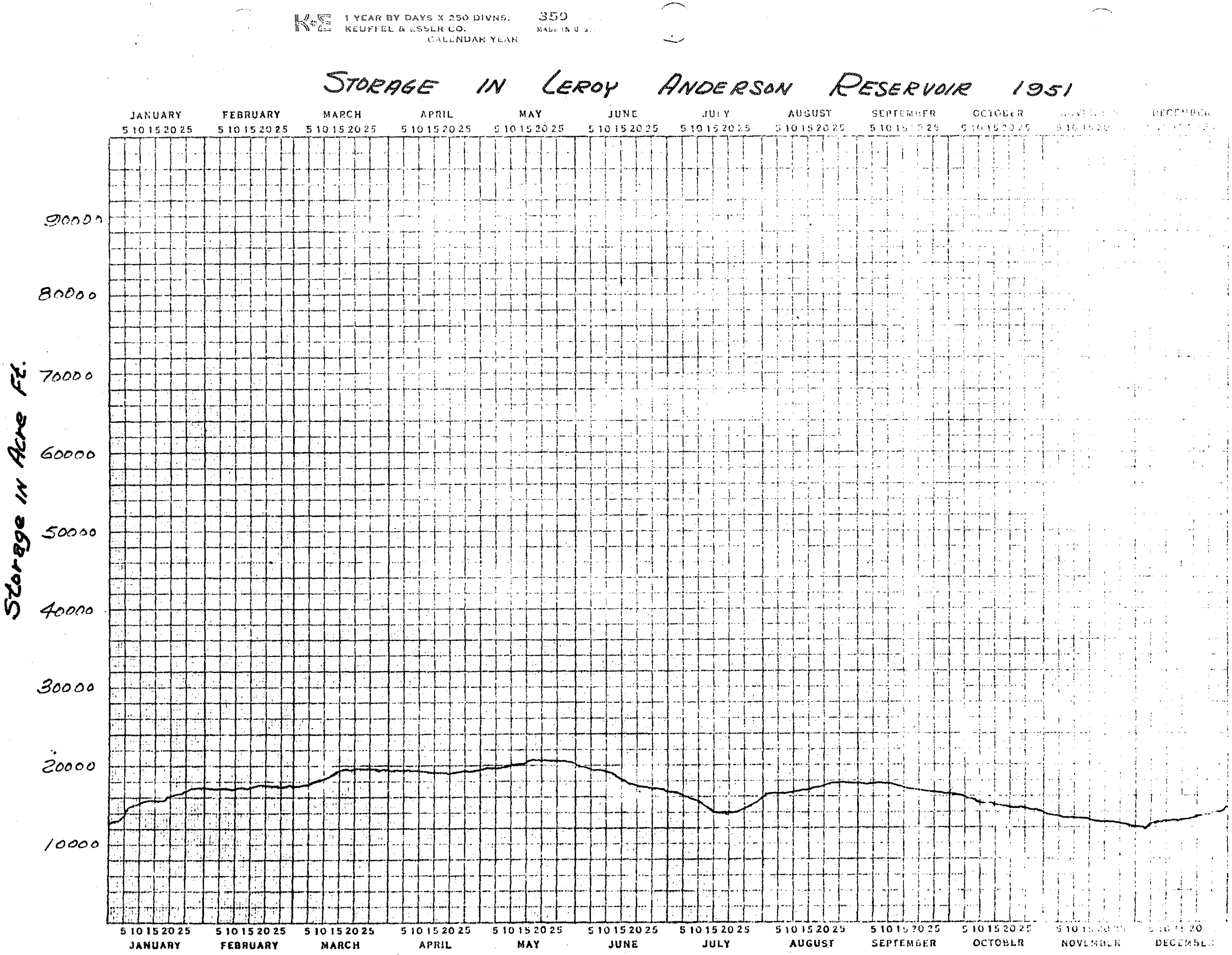
STORAGE IN LEROY ANDERSON RESERVOIR 1952



**SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT**

1952

STORAGE IN LEROY ANDERSON RESERVOIR 1951

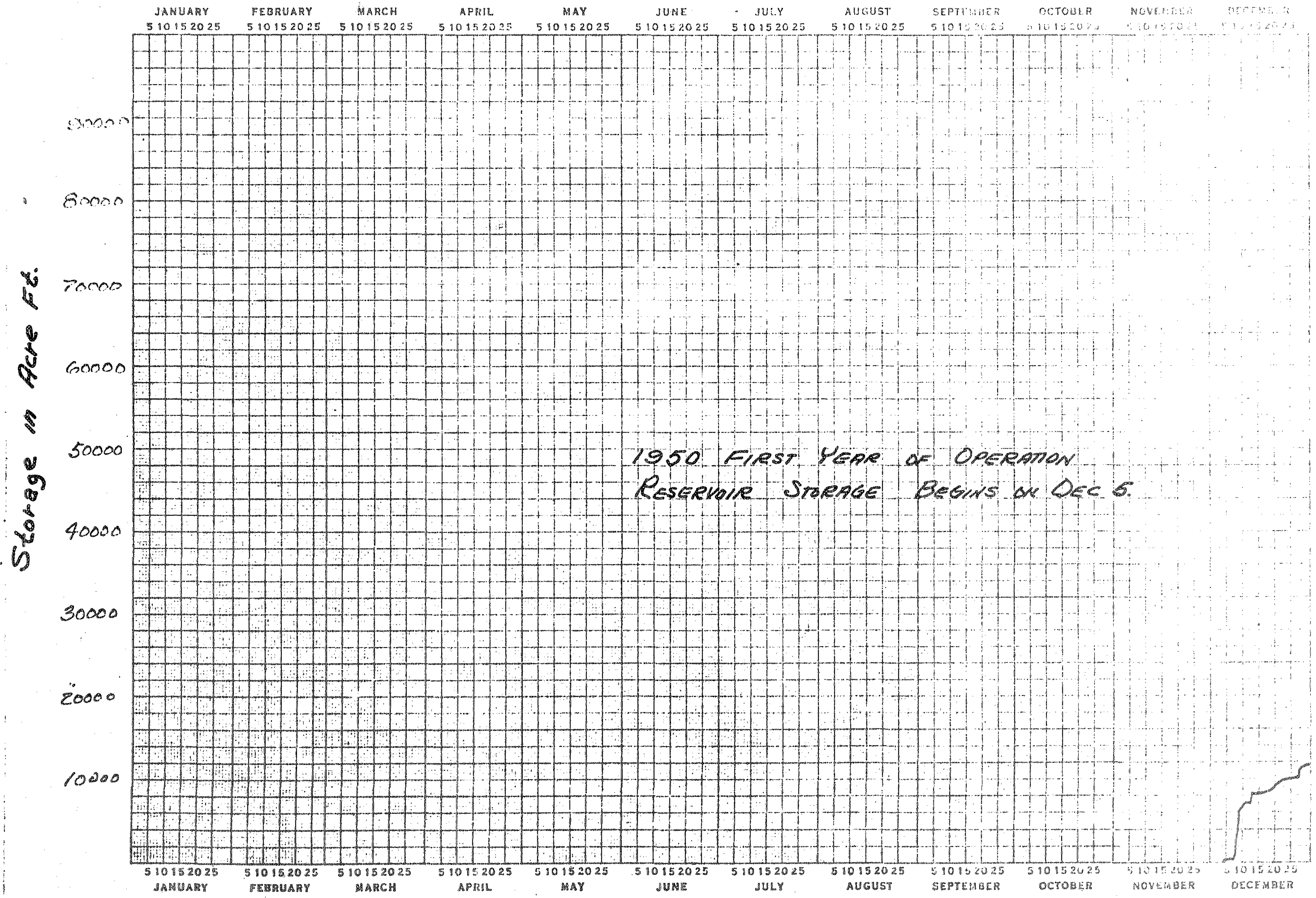


SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT

1951

K+E 1 YEAR BY DAYS X 250 DIVNS. KEUFFEL & ESSER CO. CALENDAR YEAR 359 MADE IN U.S.A.

STORAGE IN LEROY ANDERSON RESERVOIR 1950



1950 FIRST YEAR OF OPERATION
RESERVOIR STORAGE BEGINS ON DEC 5.

SANTA CLARA VALLEY
WATER CONSERVATION DISTRICT

1950

APPENDIX D

RESERVOIR STORAGE

Anderson Reservoir

Coyote Reservoir

Streamflow Data
Coyote River Below Coyote Dam (Continued)

Total Monthly Discharge in Acre Feet

Water Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1964-65	58	48	75	8714	192	4175	2358	555	5209	6000	4078	4453
1965-66	1711	146	360	8	12	1608	4478	3222	60	49	37	30
1966-67	31	74	188	4994	8368	9027	14146	2428	1315	1466	1617	1533
1967-68	1541	1442	1426	1626	1555	768	432	220	273	342	781	6617
1971-72	750	663	549	468	424	323	144	157	225	321	226	226
1972-73	1055	1279	1405	4667	28123	8091	3606	747	386	1621	3699	3981
1973-74												
1974-75	2488	2237	1658	1849	4273	12460	3883	1208	747	923	1339	1604

STREAMFLOW DATA

COYOTE CREEK NEAR GILROY

Total Monthly Discharge in Acre Feet

Water Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1960-61	0	0	22	214	387	268	123	83	39	14	1	0
1961-62	0	0	15	323	17910	8970	494	120	136	11	42	0
1962-63	754	29	316	12060	18050	5120	15020	1780	437	84	35	21
1963-64	3	659	236	5420	467	384	228	101	37	13	2	0
1964-65	0	141	14120	21770	1260	578	9010	617	178	51	12	1
1965-66	0	1	5	2	2	480	196	95	35	23	0	0
1966-67	0	212	6120	21110	4190	13400	20410	2970	671	172	15	0
1967-68	0	0	32	868	911	1190	235	45	15	5	0	0
1968-69	0	0	815	42060	37070	11400	2240	689	269	55	14	2
1969-70	0	0	611	20270	2910	10770	778	316	70	12	4	0
1970-71	0	893	9050	5190	672	2620	979	374	156	49	5	0
1971-72	0	0	1470	597	1010	160	78	51	10	4	0	0
1972-73	0	4690	512	14700	28000	8710	1870	479	103	10	0	0
1973-74	0	1640	7560	11180	970	16540	7480	776	257	73	7	0
1974-75	0	0	417	501	13070	15470	3610	826	169	51	17	6

STATION 11169800

COYOTE CREEK Near Gilroy, Calif.[1]

LOCATION: Lat. 37°04'40", long. 121°29'36", in NE 1/4 SE 1/4 sec. 11, T. 10 S., R. 4 E., Santa Clara County, on left bank 0.7 mi. (1.1 km) downstream from Bear Creek, 5.0 mi. (8.0 km) upstream from Coyote Creek Dam, and 6.4 mi. (10.3 km) northeast of Gilroy.

DRAINAGE AREA: 109 mi^2 (282 km^2).

PERIOD OF RECORD: October 1960 to current year.

GAGE: Water-stage recorder. Altitude of gage is 790 ft. (241 m), from topographic map. Prior to Nov. 14, 1963, at site 0.4 mi. (0.6 km) downstream at different datum.

AVERAGE DISCHARGE: 14 years, 47.5 ft^3/s (1.345 m^3/s), 34,410 acre-ft/yr. (42.4 hm^3/yr).

EXTREMES: Current year: Maximum discharge, 2,330 ft^3/s (66.0 m^3/s) Mar. 3 (gage height, 8.38 ft. or 2.554 m); no flow many days.

Period of record: Maximum discharge, 10,100 ft^3/s (286 m^3/s) Jan. 31, 1963 (gage height, 12.60 ft. or 3.840 m, site and datum then in use), from rating curve extended above 3,200 ft^3/s (90.6 m^3/s) on basis of slope-area measurement of maximum flow; no flow at times in each year.

REMARKS: Records good. No regulation or diversion above station. Records of water temperatures and sediment discharge for the current year are published in Part 2 of this report.

1/ This station is operated by the U. S. Geological Survey.

STREAMFLOW DATA

PACKWOOD CREEK AT JACKSON RANCH

Total Monthly Discharge in Acre Feet

Water Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1961-62	--	--	0	0	141	76	40	46	29	19	14	6
1962-63	13	6	10	326	342	137	575	235	150	98	66	43
1963-64	64	60	29	83	19	34	32	25	22	7	0	0
1964-65	0	19	154	468	77	48	148	103	78	38	36	22
1965-66	23	40	66	39	46	43	47	44	27	14	2	0
1966-67	0	15	44	NR.	NR.	244	572	267	162	164	92	55
1967-68	16	22	30	47	26	45	24	13	2	0	0	0
1968-69	0	5	17	1041	2179	1840	331	200	128	58	19	4
1969-70												
1970-71	4	16	104	52	35	56	37	35	33	18	3	0
1971-72	1	4	14	7	5	5	6	2	0	0	0	0
1972-73	0	6	1	51	183	43	110	31	30	25	12	9
1973-74	18	20	55	105	49	287	189	156	106	72	0	0
1974-75	28	28	34	26	179	266	171	117	72	62	41	25

STATION 57

PACKWOOD CREEK at Jackson Ranch

LOCATION: Water-stage recorder, lat. 37°10'08", long. 121°36'04", on right (north) bank at Jackson Ranch.

DRAINAGE AREA: 10.1 square miles.

CHANNEL AND CONTROL: Sloping concrete control.

DISCHARGE MEASUREMENTS: Low flows measured by wading. High flows from upstream side of foot bridge.

RECORDER: A Stevens type A-35 continuous water-stage recorder was in service from September 1961 to September 26, 1969. Fisher and Porter A.D.R. installed September 26, 1969, in service to date.

REGULATION: None

DIVERSIONS: None

RECORDS AVAILABLE: September 1961 to date.

OPERATION: Located and constructed by S.C.V.W.C.D., operated by S.C.V.W.D.

GAGE TYPE AND LOCATION: Metal staff on north bank below recorder house.

STREAMFLOW DATA

LAS ANIMAS CREEK AT O'CONNEL RANCH

Total Monthly Discharge in Acre Feet

Water Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1962-63	14	0	18	574	1107	774	2192	297	56	15	3	0
1963-64	0	14	12	658	71	47	30	19	7	0	0	0
1964-65	0	5	2576	4297	175	131	3409	144	39	3	0	0
1965-66	0	5	273	199	179	69	41	13	3	0	0	0
1966-67	0	2	94	1755	841	1601	4693	575	341	18	0	0
1967-68	0	0	0	139	69	279	73	18	0	0	0	0
1968-69	0	0	6	5031	6744	2296	533	190	91	11	0	0
1969-70	0	0	0	905	125	1375	113	40	2	0	0	0
1970-71	0	7	688	302	92	152	115	92	13	0	0	0
1971-72	0	0	8	11	29	17	3	0	0	0	0	0
1972-73	0	119	26	1469	5825	1972	429	217	92	4	0	0
1973-74	0	2	870	2015	177	2031	987	106	19	2	0	0
1974-75	0	0	2	2	2082	3253	828	109	12	2	0	0

STATION 56

LAS ANIMAS CREEK at O'Connell Ranch

LOCATION: Water-stage recorder, lat. 37°12'53", long. 121°39'24", on right (west) bank at O'Connell Ranch.

DRAINAGE AREA: 37 square miles.

CHANNEL AND CONTROL: Concrete Control.

DISCHARGE MEASUREMENTS: Low flow by wading, high flows by cable car upstream from recorder house and control.

RECORDER: A Stevens type A-35 continuous water-stage recorder was in service from September 1961 to June 13, 1969, Fisher and Porter A.D.R. was installed on June 13, 1969, in service to date.

REGULATION: None.

DIVERSIONS: None.

RECORDS AVAILABLE: September 1961 to date.

GAGE TYPE AND LOCATION: Staff gage and slope gage in channel. Tape and staff gage in well.

OPERATION: Located and constructed by S.C.V.W.C.D., operated by S.C.V.W.D.

STREAMFLOW DATA

COYOTE RIVER BELOW COYOTE DAM

Total Monthly Discharge in Acre Feet

Water Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940-41	0	46	575	3330	9199	12204	12062	1773	661	232	40	73
1941-42	1692	1607	4503	5125	13260	6252	11139	2170	2628	2483	2364	2106
1942-43	1847	1785	1845	11360	6026	16737	2206	1920	2753	2819	2828	2900
1943-44	2955	1301	3483	2178	760	9658	2321	2618	2856	2922	2702	2483
1944-45	3118	1367	904	976	7974	7678	2406	2840	3808	3168	3314	3251
1945-46	3888	2761	1222	1448	1363	1533	2559	4046	4548	5296	5328	2595
1956-57	NR.	NR.	729	3886	633	531	474	452	375	378	324	338
1957-58	229	326	1444	3090	7110	17330	--	--	--	--	--	--
1958-59	1414	1230	758	825	6742	960	789	926	1448	948	3533	3253
1959-60	1452	1361	1408	978	984	948	879	901	897	942	922	762
1960-61	596	468	1905	4084	2380	743	3357	302	121	62	31	30
1961-62	21	34	13	2	6395	6835	1237	4395	4870	1006	21	6
1962-63	574	11	10	243	10086	5413	5361	4225	4007	3840	3636	8932
1963-64	325	425	115	41	17	3503	2983	90	48	353	93	48

STATION 12

COYOTE RIVER below Coyote Dam

LOCATION: Water-stage recorder, lat. 37°07'23", long. 121°33'07", on right (east) bank 50 feet upstream from forestry crossing.

DRAINAGE AREA: 120 square miles.

CHANNEL AND CONTROL: Culverts in road crossing served as control until August 18, 1966 when concrete weir was installed.

DISCHARGE MEASUREMENTS: Low flows measured by wading. High flows from cableway.

RECORDER: A Stevens Type A-35 continuous water-stage recorder was in service from December 31, 1958 to June 16, 1969. Fisher & Porter ADR installed June 16, 1969 in service to date.

REGULATION: Flow regulated from Coyote Dam.

DIVERSIONS: None.

RECORDS AVAILABLE: December 31, 1958 to date. Records available from previous locations: October 1, 1940 to December 27, 1956.

GAGE TYPE AND LOCATION: Staff gage and slope gage in channel. Tape and staff gage in well.

OPERATION: Located and constructed by S.C.V.W.C.D., operated by S.C.V.W.D.

REMARKS: Back water condition from road crossing downstream from station.

Streamflow Stations

Upstream of Anderson Reservoir

Station 12:	Coyote River below Coyote Dam
Station 56:	Las Animas Creek at O'Connell Ranch
Station 57:	Packwood Creek at Jackson Ranch
Station 11169800:	Coyote Creek near Gilroy, California

APPENDIX C

STREAMFLOW DATA

EVAPORATION
(inches)

Station - Anderson

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
January	–	1.69	0.92	0.71	1.33	0.79	0.60	0.97*	1.04	0.71
February	–	1.67	1.32	1.26	1.44	1.20	1.17	1.28	1.27	1.27
March	–	2.51	3.02	2.98	3.03	2.09	2.68	1.78	1.72	2.35
April	–	2.33	5.03	4.12	4.23	3.52	3.77	4.20	3.14	2.85
May	4.92	5.51	5.72	6.23	6.08	4.11	6.13	5.20	5.09	5.45
June	8.75	5.62	8.42	6.01	5.98	5.59	6.53	6.83	5.98	5.78
July	7.98	8.53	8.35	8.42	7.36	6.98	7.50	7.27	7.09	6.28
August	8.45	7.64	6.52	8.51	6.36	6.68	7.03	6.44	5.68	5.90
September	6.08	5.67	5.92	5.56	5.36	5.23	4.44	5.00	4.38	3.94
October	4.46	4.51	3.54	4.15	2.78	2.88	2.91	2.49	2.81	2.34
November	1.60	2.11	1.44	1.31	0.84	1.63	1.31	1.02	0.92	1.30
December	0.73	1.42	0.88	0.81	0.86	1.15	0.51	0.67	0.80	0.90
Total		49.21	51.08	50.07	45.65	41.85	44.58	43.15*	39.92	39.07

*Estimated

APPENDIX E

EXISTING WATER QUALITY DATA

ANDERSON RESERVOIR

COYOTE RESERVOIR

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                                        MINERAL ANALYSES OF SURFACE WATER
 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                               MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT          LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                   DEPTH                 PH     EC                            PERCENT REACTANCE VALUE       B     F      TDS    TH     TURB    REM
                                                     CA     MG     NA     K    CO3   HCO3    SO4    CL    NO3         SIO2    SUM    NCH    SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 707.2 132.9     COYOTE RESERVOIR AT DAM                                  CONTINUED

  /  /    2400                                       --     --     --     --    --     --     --     --    --     --    --
          2400                                                                                                       --
                   1

  /  /    2400                                       --     --     --     --    --     --     --     --    --     --    --
          2400                                                                                                       --
                   1

  /  /    2400                                       --     --     --     --    --     --     --     --    --     --    --
          2400                                                                                                       --
                   1

  /  /    2400                                       --     --     --     --    --     --     --     --    --     --    --
          2400                                                                                                       --
                   1

06/05/70  2400            8.0  59  F                 --     --     --     --    --     --     --     --    --     --    --
  1125    2400             81  15  C                                                                                 --
                   1

07/01/70  2400            8.0  72  F                 --     --     --     --    --     --     --     --    --     --    --
  1100    2400             93  22  C                                                                                 --
                   1

08/13/70  2400            7.0  73  F                 --     --     --     --    --     --     --     --    --     --    --
  1100    2400             83  23  C                                                                                 --
                   1

11/29/71  2400                 54  F                 --     --     --     --    --     --     --     --    --     --    --
  0930    2400                 12  C                                                                                 --
                   1

10/05/72  2400            8.0  70  F  8.4    537     --     --     --     --    --     --     --     --    --     --    --
  1100    2400             91  21  C                                                                                 --
                   1

11/06/72  2400            6.0  64  F  8.5            64     18     26    2.9   2.1    237     --     16    .3     --    .3     432    234    45A     E
  0900    2400             65  18  C  8.1    517   3.19   1.48   1.13   .07   .07   3.88           .45   .00           --            36    0.7
                   1                                 54     25     19      1                                                                    S

12/08/72  2400            7.0  50  F  8.1            50    9.7     19    3.2    .3    151     48     12    .2    .11    --     256    166     7A
  0900    2400             63  10  C  7.7    376   2.51    .80    .83   .08   .01   2.47   1.00    .34   .00           --     217     42    0.6
                   1                                 59     19     20      2                  65     26      9                                      S

01/24/73  2400            7.0  50  F  7.9    651     --     --     --     --    --     --     10     11    .4     --    --            104
  1030    2400             63  10  C  7.9    651                                            .21    .31   .01           --
                   1                                                                                                                            S
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                                   MINERAL ANALYSES OF SUR  CE WATER

 DATE     SAMPLER  G.H.    DO     TEMP    FIELD                                 MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME     LAB      Q       SAT          LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                   DEPTH                 PH     EC                             PERCENT REACTANCE VALUE       B     F      TDS    TH     TURB   REM
                                                    CA    MG    NA    K    CO3   HCO3   SO4    CL    NO3          SIO2    SUM    NCH    SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 707.2 132.9     COYOTE RESERVOIR AT DAM                                  CONTINUED

02/20/73   2400             9.0  52  F  8.3         --    --    --    --   --    --     25    8.0   1.4    --    --            86    78A
  1000     2400              83  11  C  7.8   206                                      .52    .23   .02          --
                    1                                                                                                                   S

03/14/73   2400             8.0  52  F              --    --    --    --   --    --     22     11   1.2    --    --           108    32A
  0945     2400              74  11  C  7.8   256                                      .46    .31   .02          --
                    1                                                                                                                   S

04/10/73   2400            11.0  59  F              --    --    --    --   --    --     32     10    .5    --    --           120    10A
  0800     2400             111  15  C  8.4   222                                      .67    .28   .01          --
                    1                                                                                                                   S

05/10/73   2400             4.0  61  F              --    --    --    --   --    --     10     10    .7    --    --           132     3A
  0800     2400              41  16  C  8.0   295                                      .21    .28   .01          --
                    1                                                                                                                   S

06/07/73   2400            10.0  72  F              --    --    --    --   --    --     24     10    .5    --    --           134    15A
  0830     2400             116  22  C  7.8   311                                      .50    .28   .01          --
                    1                                                                                                                   S

07/11/73   2400             8.0  72  F              --    --    --    --   --    --     27    9.0    .4    --    --           136    13A
  0900     2400              93  22  C  8.0   306                                      .56    .25   .01          --
                    1                                                                                                                   S

08/07/73   2400             8.0  79  F              --    --    --    --   --    --     15     11    .5    --    --           142     9A
  0830     2400             100  26  C  8.0   261                                      .31    .31   .01          --
                    1                                                                                                                   S

09/05/73   2400             7.0  72  F              --    --    --    --   --    --     25     10    --    --    --           140     4A
  0800     2400              81  22  C  7.9   321                                      .52    .28                --
                    1                                                                                                                   S

10/03/73   2400             8.0  66  F              --    --    --    --   --    --     26     10    --    --    --           148     2A
  0930     2400              88  19  C  8.0   337                                      .54    .28                --
                    1                                                                                                                   S

10/30/73   2400             7.0  63  F              --    --    --    --   --    --     32     11    .5    --    --           144     6A
  1000     2400              74  17  C  8.2   347                                      .67    .31   .01          --
                    1                                                                                                                   S

12/12/73   2400             7.0  54  F              --    --    --    --   --    --     37     11    .7    --    --           142     9A>
  1000     2400              66  12  C  7.9   320                                      .77    .31   .01          --
                    1                                                                                                                   S

01/02/74   2400             8.0  41  F              --    --    --    --   --    --     35     13    .8    --    --           138     4A
  1030     2400              64   5  C  8.0   304                                      .73    .37   .01          --
                    1                                                                                                                   S
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                                        MINERAL ANALYSES OF SU   CE WATER

 DATE     SAMPLER  G.H.    DO    TEMP   FIELD                                         MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME     LAB      Q       SAT          LABORATORY   MINERAL CONSTITUENTS IN          MILLIEQUIVALENTS PER LITER
                   DEPTH                PH     EC                                     PERCENT REACTANCE VALUE     B     F      TDS    TH    TURB    REM
                                                     CA    MG    NA    K    CO3  HCO3   SO4    CL    NO3               SIO2    SUM    NCH   SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 707.2 132.9    COYOTE RESERVOIR AT DAM                                CONTINUED

02/07/74  2400             9.0   46  F                 --    --    --    --   --    --    25    11    .4      --    --                 146    7A
 0845     2400              78    8  C    8.0   281                                    .52   .33   .01             --
                       1                                                                                                                      S

03/06/74  2400            10.0   57  F                 --    --    --    --   --    --   7.0    .8    .4      --    --                 114   49A
 0930     2400              99   14  C    8.1   199                                    .15   .02   .01             --
                       1                                                                                                                      S

04/03/74  2400             9.0   54  F                 --    --    --    --   --    --    25   8.5    .0      --    --                  16   16A
 0900     2400              85   12  C    8.0   267                                    .52   .24   .00             --
                       1                                                                                                                      S

05/03/74  2400             9.0   59  F          290    --    --    --    --   --    --    40    10   9.0      --    --                 128    5A
 0900     2400              91   15  C    8.3   297                                    .83   .28   .15             --
                       1                                                                                                                      S

06/04/74  2400             8.0   70  F          290    --    --    --    --   --    --    17   9.0    .2      --    --          269    132    4A     E
 0800     2400              91   21  C    7.8   300                                    .35   .25   .00             --
                       1

07/08/74  2400             8.0   72  F          325    --    --    --    --   --    --    33   8.5    .0      --    --          308    142    1A<    E
 1000     2400              93   22  C    8.5   315                                    .69   .24   .00             --
                       1

08/08/74  2400             8.0   77  F          320    --    --    --    --   --    --    35    10    .0      --    --          296    150    3A     E
 0830     2400              98   25  C    7.7   308                                    .73   .28   .00             --
                       1

09/04/74  2400             7.0   73  F                 --    --    --    --   --    --    29   9.0    .0      --    --          304    138    9A     E
 0830     2400              83   23  C    7.8   313                                    .60   .25   .00             --
                       1

10/03/74  2400             7.0   68  F          320    --    --    --    --   --    --    30   8.0    .0      --    --          292    144   10A     E
 1000     2400              78   20  C    7.9   314                                    .62   .23   .00             --
                       1

11/05/74  2400             6.0   61  F                 --    --    --    --   --    --    28   9.0    .0      --    --          248    140    4A     E
          2400              62   16  C    7.7   326                                    .58   .25   .00             --
                       1

12/05/74  2400             7.0   55  F          335    --    --    --    --   --    --    25   9.0    .0      --    --          292    148    2A     E
 0915     2400              68   13  C    8.2   334                                    .52   .25   .00             --
                       1

02/06/75  2400             9.1   50  F          340    --    --    --    --   --    --    15   8.0    .5      --    --                 118   30A
 0900     2400              82   10  C    7.6   340                                    .31   .23   .01             --
                       1                                                                                                                      S
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                                   MINERAL ANALYSES OF SURFACE WATER

 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME      LAB      Q     SAT          LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                  DEPTH                   PH    EC                           PERCENT REACTANCE VALUE      B      F      TDS     TH    TURB    REM
                                                     CA     MG     NA     K    CO3   HCO3   SO4    CL    NO3          SIO2    SUM     NCH    SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

            E6 R 707.2 132.9     COYOTE RESERVOIR AT DAM                                     CONTINUED

04/04/75  2400           11.5  54  F          255    --     --     --     --    --     --     26    9.0    .3     --     --     188     116    20A     E
 0900     2400            109  12  C   8.2    267                                            .54   .25   .00            --
                  1

06/04/75  2400           10.2  72  F          295    --     --     --     --    --     --     37    11     .9     --     --     320     132    10A     E
 0820     2400            119  22  C   8.8    368                                            .77   .31   .01            --
                  1

08/12/75  2400            1.8  66  F          290    --     --     --     --    --     --     35    9.0    .0     --     --     320     136            E
 0930     2400             20  19  C   8.7    331                                            .73   .25   .00            --
                  1

04/12/76  2400           10.0  59  F   8.4    350    40     13     20    1.9   2.8    168     39    10     --    .10     .1     284     154     3A     E
 0916     2400            101  15  C   8.4    362  2.00   1.08    .87   .05   .09   2.75    .81   .28                   --     210      12    0.7     T
                  1                                  50     27     22     1                                                                          S

06/04/76  2400            9.8  64.4F   8.4    365    --     --     --     --    --     --     33    6.0    .0     --     --     342     160     2A     E
 1000     2400            106  18.0C   8.3    378                                            .69   .17   .00            --
                  1

08/04/76  2400            8.6  73  F   8.6    390    --     --     --     --    --     --     39    12     .0     --     --     360     170     5A     E
 0900     2400            102  23  C   8.7    392                                            .81   .34   .00            --
                  1

            E6 R 707.2 133.1     COYOTE RESERVOIR VAULT

10/07/69  2400                         7.3           --     --     --     --    --     --     --    15     --     --     --             160    10A
 1430     2400                                                                                     .42                  --
                  1                                                                                                                             S

11/09/69  2400                         8.0           --     --     --     --    --     --     --    15     --     --     --             160    10A
          2400                                                                                     .42                  --
                  1                                                                                                                             S

12/29/69  2400                         8.1           --     --     --     --    --     --     --    15     --     --     --             190     2A
          2400                                                                                     .42                  --
                  1                                                                                                                             S

02/03/70  2400                         8.1           --     --     --     --    --     --    9.0    10     .1     --     --             100    42A
 0945     2400                                                                               .19   .28   .00            --
                  1                                                                                                                             S

03/03/70  2400                         8.2           --     --     --     --    --     --     38    15     .2     --     --                    38A
          2400                                                                               .79   .42   .00            --
                  1                                                                                                                             S

04/02/70  2400                         8.4           --     --     --     --    --     --     48    15     .1     --     --                    12A
          2400                                                                              1.00   .42   .00            --
                  1                                                                                                                             S
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MINERAL ANALYSES OF SU[illegible]CE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

E6 R 707.2 133.1 COYOTE RESERVOIR VAULT CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	B	F SIO2	TDS SUM	TH NCH	TURB SAR	REM
04/30/70	2400 2400	 1			7.9		--	--	--	--	--	--	55 1.15	7.0 .20	.4 .01	--	-- --				 S
06/05/70 1125	2400 2400	 1	3.0 30	57 F 14 C	7.8		--	--	--	--	--	--	38 .79	7.0 .20	.2 .00	--	-- --				 S
07/01/70 1100	2400 2400	 1	1.0 10	59 F 15 C	7.3		--	--	--	--	--	--	38 .79	15 .42	.1 .00	--	-- --				 S
08/13/70 1200	2400 2400	 1	2.0 20	59 F 15 C	7.8		--	--	--	--	--	--	28 .58	15 .42	--	--	-- --			5A	 S
09/30/70 1145	2400 2400	 1	0.0	61 F 16 C	7.9		--	--	--	--	--	--	24 .50	15 .42	.1 .00	--	-- --			10A	 S
01/04/71 1000	2400 2400	 1	12.0 103	46 F 8 C	8.0		--	--	--	--	--	--	42 .87	18 .51	.2 .00	--	-- --		130	15A	 S
03/11/71 1015	2400 2400	 1	10.0 90	50 F 10 C	7.7		--	--	--	--	--	--	41 .85	20 .56	.1 .00	--	-- --		110	4A	 S
03/29/71 1025	2400 2400	 1	20.0 185	52 F 11 C	7.5		--	--	--	--	--	--	42 .87	20 .56	.1 .00	--	-- --		90	9A	 S
06/26/71 1015	2400 2400	 1	4.0 41	61 F 16 C	7.4		--	--	--	--	--	--	34 .71	20 .56	.1 .00	--	-- --		120	9A	 S
08/04/71 1000	2400 2400	 1	1.0 11	66 F 19 C	7.5		--	--	--	--	--	--	36 .75	15 .42	--	--	-- --		120	2A	 S
09/07/71 1130	2400 2400	 1	6.0 67	68 F 20 C	8.0		--	--	--	--	--	--	42 .87	15 .42	--	--	-- --		120	2A	 S
09/30/71 1030	2400 2400	 1	4.0 42	63 F 17 C	7.7		--	--	--	--	--	--	43 .90	15 .42	.1 .00	--	-- --		120	20A	 S

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                                         MINERAL ANALYSES OF SU   CE WATER

 DATE     SAMPLER  G.H.    DO     TEMP   FIELD                               MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB      Q     SAT          LABORATORY  MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                  DEPTH                  PH    EC                           PERCENT REACTANCE VALUE    B     F     TDS    TH    TURB    REM
                                                   CA    MG    NA    K    CO3  HCO3   SO4    CL   NO3        SIO2   SUM   NCH    SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

            E6 R 707.2 133.1     COYOTE RESERVOIR VAULT                                CONTINUED

10/28/71  2400            6.0  57  F  7.7          --    --    --    --    --    --    42    20    .1    --    --            180    9A
          2400             59  14  C                                                 .87   .56   .00          --
                   1                                                                                                                  S

11/29/71  2400            7.0  52  F  7.5          --    --    --    --    --    --    51    15    .1    --    --            140   15A
  0930    2400             65  11  C                                                1.06   .42   .00          --
                   1                                                                                                                  S

01/04/72  2400            8.1  45  F  8.1          --    --    --    --    --    --    54    20    .1    --    --            180    5A
  1000    2400             68   7  C                                                1.12   .56   .00          --
                   1                                                                                                                  S

02/12/72  2400            1.4  46  F  7.8          --    --    --    --    --    --    60    15    .2    --    --            130    5A
  0900    2400             12   8  C                                                1.25   .42   .00          --
                   1                                                                                                                  S

03/10/72  2400                 52  F  7.7          --    --    --    --    --    --    60    10    .1    --    --            120   11A
  1030    2400                 11  C                                                1.25   .28   .00          --
                   1                                                                                                                  S

03/27/72  2400                 55  F  8.0          --    --    --    --    --    --    56    15    .1    --    --            150   11A
  1000    2400                 13  C                                                1.17   .42   .00          --
                   1                                                                                                                  S

05/03/72  2400            6.0  57  F  7.6          --    --    --    --    --    --    56    13    .1    --    --            150   19A
  0930    2400             59  14  C                                                1.17   .37   .00          --
                   1                                                                                                                  S

05/30/72  2400            5.0  61  F  7.8          --    --    --    --    --    --    71    15    --    --    --            130   21A
  0900    2400             52  16  C                                                1.48   .42                --
                   1                                                                                                                  S

07/12/72  2400            1.0  72  F  7.7          --    --    --    --    --    --    61    16    .3    --    --            232   29A
  0800    2400             12  22  C                                                1.27   .45   .00          --
                   1                                                                                                                  S

09/11/72  2400            7.0  72  F  8.1          --    --    --    --    --    --    65    20   2.0    --    --            238   24A
  0930    2400             81  22  C                                                1.35   .56   .03          --
                   1                                                                                                                  S

10/05/72  2400            8.0  70  F  8.4          --    --    --    --    --    --    47    15    .4    --    --            234   27A
  1100    2400             91  21  C        537                                      .98   .42   .01          --
                   1                                                                                                                  S

11/06/72  2400            6.0  63  F  8.5          --    --    --    --    --    --    --    16    .3    --    --            234
  0900    2400             63  17  C  8.1   517                                            .45   .00          --
                   1                                                                                                                  S
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                                    MINERAL ANALYSES OF SUR[illegible]CE WATER

 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                  MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB     Q     SAT           LABORATORY  MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                  DEPTH                  PH    EC                            PERCENT REACTANCE VALUE     B     F      TDS    TH    TURB    REM
                                                     CA    MG    NA    K   CO3  HCO3   SO4    CL   NO3         SIO2    SUM    NCH    SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

             E6 R 707.2 133.1    COYOTE RESERVOIR VAULT                           CONTINUED

03/14/73  2400          9.0  52  F                 --    --    --    --   --    --     22    11   1.1    --    --            108
  0945    2400           83  11  C  7.8   256                                          .46   .31   .02          --
                   1                                                                                                                   S

05/10/73  2400          4.0  55  F                 --    --    --    --   --    --     10    10    .6    --    --            132    11A
  0800    2400           39  13  C  7.9   295                                          .21   .28   .01          --
                   1                                                                                                                   S

06/07/73  2400          4.0  55  F                 --    --    --    --   --    --     24    10    .5    --    --            134    22A
  0830    2400           39  13  C  7.8   311                                          .50   .28   .01          --
                   1                                                                                                                   S

07/11/73  2400          1.0  57  F                 --    --    --    --   --    --     27    10    .4    --    --            136     6A
  0900    2400           10  14  C  7.9   306                                          .56   .28   .01          --
                   1                                                                                                                   S

08/07/73  2400          2.0  57  F                 --    --    --    --   --    --     15    11    .4    --    --            142     7A
  0830    2400           20  14  C  8.0   261                                          .31   .31   .01          --
                   1                                                                                                                   S

09/05/73  2400          0.0  63  F                 --    --    --    --   --    --     25    10    .0    --    --            140     5A
  0800    2400               17  C  7.9   321                                          .52   .28   .00          --
                   1                                                                                                                   S

10/03/73  2400          1.0  63  F                 --    --    --    --   --    --     26    11    .0    --    --            148    13A
  0930    2400           11  17  C  8.0   337                                          .54   .31   .00          --
                   1                                                                                                                   S

10/30/73  2400          7.0  68  F                 --    --    --    --   --    --     32    11    .5    --    --            144     8A
  1000    2400           78  20  C  8.1   347                                          .67   .31   .01          --
                   1                                                                                                                   S

12/12/73  2400          8.0  52  F                 --    --    --    --   --    --     37    11    .6    --    --            142    14A
  1000    2400           74  11  C  7.9   320                                          .77   .31   .01          --
                   1                                                                                                                   S

01/02/74  2400          8.0  43  F                 --    --    --    --   --    --     35    13    .7    --    --            138     6A
  1030    2400           66   6  C  8.0   304                                          .73   .37   .01          --
                   1                                                                                                                   S
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                                MINERAL ANALYSES OF SURFACE WATER

DATE     SAMPLER  G.H.   DO      TEMP   FIELD                                  MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
TIME      LAB      Q     SAT           LABORATORY   MINERAL CONSTITUENTS IN    MILLIEQUIVALENTS PER LITER
                 DEPTH                  PH     EC                              PERCENT REACTANCE VALUE       B      F      TDS     TH    TURB    REM
                                                    CA    MG    NA    K    CO3   HCO3   SO4    CL    NO3         SIO2     SUM     NCH    SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 709.6 137.8    ANDERSON RESERVOIR VAULT ✓

10/14/69  2400                          7.7          --    --    --   --   --    --     --     15    --     --     --              130    22A
  1000    2400                                                                              .42                 --
                 1                                                                                                                        S

11/14/69  2400                          7.3          --    --    --   --   --    --     --     10    --     --     --              120     8A
  0930    2400                                                                              .28                 --
                 1                                                                                                                        S

12/15/69  2400                          7.5          --    --    --   --   --    --     --     10    --     --     --              130    35A
  1010    2400                                                                              .28                 --
                 1                                                                                                                        S

01/27/70  2400                          7.9          --    --    --   --   --    --     --     15    .9     --     --              130    35A
  1000    2400                                                                              .42   .01           --
                 1                                                                                                                        S

02/24/70  2400                          7.8          --    --    --   --   --    --     37     15    .3     --     --                     40A
  1000    2400                                                                       .77    .42   .00           --
                 1                                                                                                                        S

04/01/70  2400                          8.3          --    --    --   --   --    --     34     16    .6     --     --                      3A
  1000    2400                                                                       .71    .45   .01           --
                 1                                                                                                                        S

04/29/70  2400                          8.0          --    --    --   --   --    --     28     20    .6     --     --                     16A
  1000    2400                                                                       .58    .56   .01           --
                 1                                                                                                                        S

05/20/70  2400           10.0   54  F   8.3          --    --    --   --   --    --     38     25    .8     --     --                      2A
  1000    2400             94   12  C                                                .79    .71   .01           --
                 1                                                                                                                        S

06/26/70  2400           11.0   55  F   7.8          --    --    --   --   --    --     40     15    .8     --     --                     10A
  0930    2400            106   13  C                                                .83    .42   .01           --
                 1                                                                                                                        S

08/07/70  2400                  55  F   8.2          --    --    --   --   --    --     30     15    .5     --     --                      2A
  0850    2400                  13  C                                                .62    .42   .01           --
                 1                                                                                                                        S

09/03/70  2400           12.0   55  F   8.3          --    --    --   --   --    --     28     20    .4     --     --                      1A
  0955    2400            116   13  C                                                .58    .56   .01           --
                 1                                                                                                                        S

10/01/70  2400           12.0   56.3F   8.1          --    --    --   --   --    --     31     20    .5     --     --                      5A
  0830    2400            117   13.5C                                                .65    .56   .01           --
                 1                                                                                                                        S
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MINERAL ANALYSES OF SURFACE WATER

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 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                    MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME      LAB      Q     SAT          LABORATORY   MINERAL CONSTITUENTS IN     MILLIEQUIVALENTS PER LITER
                  DEPTH                  PH     EC                               PERCENT REACTANCE VALUE      B      F      TDS     TH     TURB   REM
                                                    CA     MG     NA     K    CO3   HCO3    SO4    CL    NO3          SIO2     SUM    NCH     SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 709.6 137.8     ANDERSON RESERVOIR VAULT                         CONTINUED

11/02/70  2400           11.0  57  F  7.6           --     --     --     --    --     --     28    7.0    .3     --     --                     42A
  0900    2400            108  14  C                                                       .58    .20   .00            --
                    1                                                                                                                               S

12/01/70  2400           11.0  57  F  8.1           --     --     --     --    --     --     54     15    .1     --     --             152     43A
  0930    2400            108  14  C                                                      1.12    .42   .00            --
                    1                                                                                                                               S

01/05/71  2400           11.0  52  F  7.3           --     --     --     --    --     --     37     18    .3     --     --             150     68A
  0930    2400            101  11  C                                                       .77    .51   .00            --
                    1                                                                                                                               S

02/04/71  2400           13.0  50  F  8.3           --     --     --     --    --     --     36     18    .4     --     --                    100A
  1115    2400            117  10  C                                                       .75    .51   .01            --
                    1                                                                                                                               S

03/12/71  2400           13.0  50  F  7.5           --     --     --     --    --     --     35     15    .2     --     --                     35A
  0850    2400            117  10  C                                                       .73    .42   .00            --
                    1                                                                                                                               S

03/30/71  2400                 50  F  7.9           --     --     --     --    --     --     70     14    .3     --     --                     80A
  1140    2400                 10  C                                                      1.46    .39   .00            --
                    1                                                                                                                               S

04/27/71  2400           10.0  50  F  7.7           --     --     --     --    --     --     34     20    .3     --     --                     50A
  0915    2400             90  10  C                                                       .71    .56   .00            --
                    1                                                                                                                               S

05/18/71  2400                 52  F  8.2           --     --     --     --    --     --     45     15    .4     --     --                      8A
  1000    2400                 11  C                                                       .94    .42   .01            --
                    1                                                                                                                               S

06/26/71  2400            7.0  54  F  7.2           --     --     --     --    --     --     35     20    .3     --     --             110      1A
  1230    2400             66  12  C                                                       .73    .56   .00            --
                    1                                                                                                                               S

08/06/71  2400            3.0  54  F  7.5           --     --     --     --    --     --     36     20    .3     --     --                      1A
  0915    2400             28  12  C                                                       .75    .56   .00            --
                    1                                                                                                                               S

09/01/71  2400            3.0  54  F  7.1           --     --     --     --    --     --     36     20    .5     --     --                     11A
  1330    2400             28  12  C                                                       .75    .56   .01            --
                    1                                                                                                                               S

09/29/71  2400            0.0  54  F  7.3           --     --     --     --    --     --     35     15    .4     --     --                     20A
  0930    2400                 12  C                                                       .73    .42   .01            --
                    1                                                                                                                               6
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                                     MINERAL ANALYSES OF SL  CE WATER

 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                    MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT           LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                   DEPTH                  PH     EC                            PERCENT REACTANCE VALUE       B      F       TDS     TH    TURB   REM
                                                      CA     MG     NA     K     CO3   HCO3    SO4    CL    NO3           SIO2     SUM    NCH    SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               E6 R 709.6 137.8     ANDERSON RESERVOIR VAULT                              CONTINUED

10/29/71  2400            0.0  54  F  7.2         --     --     --     --    --    --      32     12    .3     --     --                     19A
  0830    2400                 12  C                                                     .67    .35   .00            --
                   1                                                                                                                               S

11/30/71  2400                 54  F  8.2         --     --     --     --    --    --      36     15    .3     --     --                     72A
  0900    2400                 12  C                                                     .75    .42   .00            --
                   1                                                                                                                               S

01/05/72  2400                 50  F  8.0         --     --     --     --    --    --      33     15    .2     --     --                      2A
  1000    2400                 10  C                                                     .69    .42   .00            --
                   1                                                                                                                               S

02/11/72  2400                 48  F  8.2         --     --     --     --    --    --      38     15   1.0     --     --                     48A
  0900    2400                  9  C                                                     .79    .42   .02            --
                   1                                                                                                                               S

03/09/72  2400                 48  F  8.2         --     --     --     --    --    --      38     15    .3     --     --                     55A
  0900    2400                  9  C                                                     .79    .42   .00            --
                   1                                                                                                                               S

04/05/72  2400                 59  F  8.0         --     --     --     --    --    --      35     12    .3     --     --                     39A
  0900    2400                 15  C                                                     .73    .34   .00            --
                   1                                                                                                                               S

05/01/72  2400            7.0  50  F  7.3         --     --     --     --    --    --      41     15    .3     --     --                     38A
  1030    2400             63  10  C                                                     .85    .42   .00            --
                   1                                                                                                                               S

05/31/72  2400            5.0  52  F  7.4         --     --     --     --    --    --      38     15    .3     --     --                     10A
  0900    2400             46  11  C                                                     .79    .42   .00            --
                   1                                                                                                                               S

07/12/72  2400            4.0  55  F  7.9         --     --     --     --    --    --      46     13    .8     --     --                      3A
  1100    2400             39  13  C                                                     .96    .37   .01            --
                   1                                                                                                                               S

09/11/72  2400            3.0  66  F  7.9         --     --     --     --    --    --      40     10   2.6     --     --                     12A
  1250    2400             33  19  C                                                     .83    .28   .04            --
                   1                                                                                                                               S

10/06/72  2400            2.0  66  F  7.5         --     --     --     --    --    --      37     14   2.2     --     --                     38A
  0830    2400             22  19  C                                                     .78    .39   .04            --
                   1                                                                                                                               S

11/09/72  2400            8.0  63  F              45.2    76     22   2.5   2.1   219     --     14    .3     --     .3     416    200     7A     E
  0930    2400             84  17  C  8.2   449   2.26   6.25   .96   .06   .07  3.59            .39   .00            --            17    0.7
                   1                               45    125     19    1                                                                           S
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                                              MINERAL ANALYSES OF SU  CE WATER

 DATE      SAMPLER  G.H.    DO    TEMP   FIELD                                     MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME       LAB      Q      SAT        LABORATORY   MINERAL CONSTITUENTS IN     MILLIEQUIVALENTS PER LITER
                   DEPTH                  PH     EC                             PERCENT REACTANCE VALUE        B      F      TDS      TH     TURB    REM
                                                     CA     MG     NA     K    CO3   HCO3    SO4     CL    NO3           SIO2    SUM     NCH     SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               E0 R 709.6 137.8     ANDERSON RESERVOIR VAULT                                    CONTINUED

12/19/72   2400                                      53     17     24    3.4   1.2    207     50     15     .3    .14    --      404     206      8A     E
  1330     2400                          8.0    464 2.08   1.44   1.04   .09   .04   3.39   1.04    .42    .00           --      267      35     0.7     T
                      1                              51     27     20      2     1     69     21      9                                                 S

01/22/73   2400            10.0  46  F   8.3         --     --     --     --    --     --     29     16     .5     --    --              180     92A
  1000     2400              86   8  C   8.1    404                                          .60    .45    .01           --
                      1                                                                                                                               S

02/15/73   2400                                      --     --     --     --    --     --     35     13    1.8     --    --              156
  0830     2400                          8.1                                                 .73    .37    .03           --
                      1                                                                                                                               S

03/14/73   2400                  52  F                --     --     --     --    --     --     22     12    2.1     --    --              132     60A
  1100     2400                  11  C   8.0    312                                          .46    .34    .03           --
                      1                                                                                                                               S

04/10/73   2400             7.0  52  F                --     --     --     --    --     --     38     12    2.0     --    --              136     22A
  1030     2400              65  11  C   8.4    315                                          .79    .34    .03           --
                      1                                                                                                                               S

05/10/73   2400             5.0  54  F                --     --     --     --    --     --     25     13    1.6     --    --              138     19A
  1045     2400              47  12  C   8.0    289                                          .52    .37    .03           --
                      1                                                                                                                               S

06/07/73   2400             6.0  52  F                --     --     --     --    --     --     17     12     .0     --    --              142     28A
  1130     2400              55  11  C   8.1    334                                          .35    .34    .00           --
                      1                                                                                                                               S

07/11/73   2400             5.0  54  F                --     --     --     --    --     --     32     12    1.3     --    --              148     21A
  1150     2400              47  12  C   8.0    341                                          .67    .34    .02           --
                      1                                                                                                                               S

08/07/73   2400             9.0  57  F                --     --     --     --    --     --     20     12     .2     --    --              150     12A
  1130     2400              89  14  C   8.4    310                                          .42    .34    .00           --
                      1                                                                                                                               S

09/06/73   2400             2.0  55  F                --     --     --     --    --     --     20     12     .8     --    --              142      6A
  0900     2400              19  13  C   7.8    331                                          .42    .34    .01           --
                      1                                                                                                                               S

10/03/73   2400             1.0  55  F                --     --     --     --    --     --     19     12     .6     --    --              145     20A
  1130     2400              10  13  C   8.0    347                                          .40    .34    .01           --
                      1                                                                                                                               S

10/30/73   2400             8.0  57  F                --     --     --     --    --     --     34     13     .8     --    --              146      9A
  1130     2400              79  14  C   7.9    344                                          .71    .37    .01           --
                      1                                                                                                                               S
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MINERAL ANALYSES OF SU[illegible]CE WATER

E6 R 709.6 137.8 ANDERSON RESERVOIR VAULT CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP		FIELD LABORATORY PH	EC	CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	B	F SIO2	TDS SUM	TH NCH	TURB SAR	REM
12/11/73	2400		5.0	57	F			--	--	--	--	--	--	25	21	.5	--	--		160	260A	
0900	2400		49	14	C	7.9	361							.52	.59	.01		--				
		1																				S
01/09/74	2400			50	F			--	--	--	--	--	--	37	12	1.3	--	--		160	18A	
0830	2400			10	C	8.2								.77	.34	.02		--				
		1																				S
02/07/74	2400		7.0	52	F			--	--	--	--	--	--	30	12	.5	--	--		154	8A	
1000	2400		65	11	C									.62	.34	.01		--				
		1																				S
03/06/74	2400			50	F			--	--	--	--	--	--	30	11	.4	--	--		150	1A	
1130	2400			10	C	8.3								.62	.31	.01		--				
		1																				S
04/03/74	2400		9.0	50	F			--	--	--	--	--	--	30	11	.1	--	--		150	9A	
1030	2400		81	10	C	8.2								.62	.31	.00		--				
		1																				S
05/01/74	2400		7.0	55	F			--	--	--	--	--	--	33	13	.3	--	--		148	10A	
1130	2400		68	13	C	8.2								.69	.37	.00		--				
		1																				S
06/04/74	2400		6.0	55	F			--	--	--	--	--	--	43	14	.3	--	--		154	5A	
1100	2400		58	13	C	8.0								.90	.39	.00		--				
		1																				S
07/09/74	2400		7.0	55	F		360	--	--	--	--	--	--	30	11	.3	--	--		150	2A	
1100	2400		68	13	C	8.0								.62	.32	.00		--				
		1																				S
08/08/74	2400		6.0	61	F		355	--	--	--	--	--	--	30	11	.1	--	--	220	154	2A	
1100	2400		62	16	C	7.9	341							.62	.32	.00		--				
		1																				
09/04/74	2400		5.0	54	F			--	--	--	--	--	--	37	10	.6	--	--	384	154	12A	E
1100	2400		47	12	C	7.9	352							.77	.28	.01		--				
		1																				
10/03/74	2400		5.0	57	F		360	--	--	--	--	--	--	40	12	.5	--	--	280	162	20A	E
1130	2400		49	14	C	8.0	361							.83	.34	.01		--				
		1																				
11/05/74	2400		3.0	57	F			--	--	--	--	--	--	38	11	.2	--	--	344	160	20A	E
1115	2400		30	14	C	7.9	363							.79	.31	.00		--				
		1																				

MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE (MINERAL CONSTITUENTS IN); MILLIGRAMS PER LITER (B, F, SIO2, TDS, TH, TURB)

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                                  MINERAL ANALYSES OF SU   CE WATER

 DATE     SAMPLER  G.H.   DO     TEMP   FIELD                                   MILLIGRAMS PER LITER      MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT           LABORATORY   MINERAL CONSTITUENTS IN    MILLIEQUIVALENTS PER LITER
                   DEPTH                PH     EC                               PERCENT REACTANCE VALUE    B     F      TDS    TH    TURB   REM
                                                     CA    MG    NA    K   CO3  HCO3   SO4   CL    NO3        SIO2    SUM    NCH   SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 709.6 137.8     ANDERSON RESERVOIR VAULT                          CONTINUED

12/05/74  2400             2.0  55    F          355   --    --    --    --   --    --     32    11    .3    --    --     284    158    5A     E
 1130     2400              19  13    C   7.9    356                                      .67   .31   .00          --
                      1

02/06/75  2400                                   355   --    --    --    --   --    --     40    12   1.1    --    --     232    160
 1100     2400                            8.3    362                                      .83   .34   .02          --
                      1

04/04/75  2400             9.5  52    F          350   --    --    --    --   --    --     43    11    .3    --    --     252    154   19A
 1130     2400              88  11    C   8.0    360                                      .90   .31   .00          --
                      1

06/04/75  2400             6.3  54    F   8.3    340   --    --    --    --   --    --     35    13    .5    --    --     356    172    8A     E
 1130     2400              59  12    C   8.0    308                                      .73   .37   .01          --
                      1                                                                                                                   S

08/12/75  2400             3.6  59    F   7.7    340   --    --    --    --   --    --     38    11    .1    --    --     356    154           E
 1110     2400              36  15    C   8.0    372                                      .79   .31   .00          --
                      1

10/08/75  2400             1.9  68    F   7.9    345   --    --    --    --   --    --     39    13    .1    --    --     348    158   20A     E
 1000     2400              21  20    C   7.7    365                                      .81   .37   .00          --
                      1

12/10/75  2400             4.9  55.4F            355   --    --    --    --   --    --     37    13    .0    --    --     348    164
 1230     2400              47  13.0C     8.1                                             .77   .37   .00          --
                      1                                                                                                                   S

02/04/76  2400             9.3  50.4F     8.3    385   --    --    --    --   --    --     47    18    .2    --    --     376    158
 1100     2400              84  10.2C     8.2                                             .98   .51   .00          --
                      1                                                                                                                   S

06/04/76  2400             5.6  54    F   8.2    390   --    --    --    --   --    --     37    12    .1    --    --     395    152   52A     E
 1130     2400              53  12    C   8.1    401                                      .77   .34   .00          --
                      1

08/04/76  2400             2.4  57.2F     7.6    385   --    --    --    --   --    --     38    13    .0    --    --     406    174   20A     E
 1000     2400              24  14.0C     8.2    417                                      .79   .37   .00          --
                      1
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                                    MINERAL ANALYSES OF SU   ACE WATER

 DATE    SAMPLER  G.H.   DO     TEMP    FIELD                                  MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME     LAB      Q     SAT          LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                 DEPTH                  PH    EC                            PERCENT REACTANCE VALUE     B     F     TDS    TH    TURB    REM
                                                   CA    MG    NA    K    CO3   HCO3   SO4   CL   NO3          SIO2   SUM    NCH   SAR
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

          E6 R 7.9.9 137.6    ANDERSON RESERVOIR AT DAM

 06/26/70  2400            8.0  72  F                --    --    --    --    --    --    --    --   --     --    --
   0930    2400             93  22  C                                                                            --
                     1

 08/07/70  2400            7.0  72  F                --    --    --    --    --    --    --    --   --     --    --
   0850    2400             81  22  C                                                                            --
                     1

 09/03/70  2400            8.0  70  F  8.1           --    --    --    --    --    --    32    28   .0     --    --                 1A
   0955    2400             91  21  C                                                   .67   .79  .00           --
                     1                                                                                                                  S

 10/01/70  2400            9.0  68  F                --    --    --    --    --    --    --    --   --     --    --
   0833    2400            100  20  C                                                                            --
                     1

 11/02/70  2400            9.0  61  F                --    --    --    --    --    --    --    --   --     --    --
   0900    2400             93  16  C                                                                            --
                     1

 12/01/70  2400            9.0  57  F                --    --    --    --    --    --    --    --   --     --    --
   0930    2400             89  14  C                                                                            --
                     1

 01/05/71  2400           11.0  52  F                --    --    --    --    --    --    --    --   --     --    --
   0930    2400            101  11  C                                                                            --
                     1

 02/04/71  2400           13.0  50  F                --    --    --    --    --    --    --    --   --     --    --
   1115    2400            117  10  C                                                                            --
                     1

 03/12/71  2400           14.0  52  F                --    --    --    --    --    --    --    --   --     --    --
   0850    2400            129  11  C                                                                            --
                     1

 03/30/71  2400           10.0  57  F                --    --    --    --    --    --    --    20   .9     --    --
   1140    2400             99  14  C                                                         .56  .01           --
                     1                                                                                                                  S

 04/27/71  2400            9.0  55  F                --    --    --    --    --    --    --    --   --     --    --
   0915    2400             87  13  C                                                                            --
                     1

 05/18/71  2400           10.0  61  F                --    --    --    --    --    --    --    --   --     --    --
   1000    2400            103  16  C                                                                            --
                     1
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MINERAL ANALYSES OF SURFACE WATER

E6 R 7.9.9 137.6 ANDERSON RESERVOIR AT DAM CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE									MILLIGRAMS PER LITER					
						CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	B	F SIO2	TDS SUM	TH NCH	TURB SAR	REM
06/26/71	2400		5.0	68 F		--	--	--	--	--	--	--	--	--	--	--				
1230	2400		56	20 C												--				
		1																		
08/06/71	2400		9.0	72 F		--	--	--	--	--	--	--	--	--	--	--				
0915	2400		104	22 C												--				
		1																		
09/01/71	2400		8.0	72 F		--	--	--	--	--	--	--	--	--	--	--				
1330	2400		93	22 C												--				
		1																		
09/27/71	2400		11.0	66 F		--	--	--	--	--	--	--	--	--	--	--				
0930	2400		120	19 C												--				
		1																		
10/29/71	2400		7.0	61 F		--	--	--	--	--	--	--	--	--	--	--				
0830	2400		72	16 C												--				
		1																		
11/30/71	2400		8.0	57 F		--	--	--	--	--	--	--	--	--	--	--				
0900	2400		79	14 C												--				
		1																		
01/05/72	2400		10.0	48 F		--	--	--	--	--	--	--	--	--	--	--			6A	
1000	2400		88	9 C												--				
		1																		
02/11/72	2400			48 F		--	--	--	--	--	--	--	--	--	--	--			0A	
0900	2400			9 C												--				
		1																		
03/09/72	2400			55 F		--	--	--	--	--	--	--	--	--	--	--				
0900	2400			13 C												--				
		1																		
04/05/72	2400			61 F		--	--	--	--	--	--	--	--	--	--	--				
0900	2400			16 C												--				
		1																		
05/01/72	2400		10.0	61 F		--	--	--	--	--	--	--	--	--	--	--				
1030	2400		103	16 C												--				
		1																		
05/31/72	2400		10.0	66 F		--	--	--	--	--	--	--	--	--	--	--				
0900	2400		109	19 C												--				
		1																		

MINERAL ANALYSES OF SURFACE WATER

E6 R 709.9 137.6 ANDERSON RESERVOIR AT DAM CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP		FIELD LABORATORY PH	EC	MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER MILLIEQUIVALENTS PER LITER PERCENT REACTANCE VALUE									MILLIGRAMS PER LITER					
								CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	B	F SIO2	TDS SUM	TH NCH	TURB SAR	REM
07/12/72	2400		10.0	77	F			--	--	--	--	--	--	--	--	--	--	--				
1100	2400		122	25	C													--				
		1																				
09/11/72	2400		8.0	61	F			54	76	22	2.5	2.1	219	--	14	.3	--	.3	416	200	7	E
0930	2400		82	16	C	8.2	449	2.69	6.25	.96	.06	.07	3.59		.39	.00		--		264	0.5	
		1						27	63	10	1											S
09/11/72	2400		9.0	73	F			--	--	--	--	--	--	--	--	--	--	--				
1250	2400		106	23	C													--				
		1																				
10/06/72	2400		10.0	68	F			--	--	--	--	--	--	--	--	--	--	--				
0830	2400		112	20	C													--				
		1																				
12/07/72	2400		8.0	54	F	8.3		53	17	24	3.4	1.2	207	50	15	.3	.14	--	404	206	4	E
1030	2400		76	12	C	7.9	464	2.67	1.44	1.04	.09	.04	3.39	1.04	.42	.00		--	267	34	0.7	T
		1						51	27	20	2	1	69	21	9							S
01/22/73	2400							--	--	--	--	--	--	29	16	.5	--	--		180		
1000	2400					8.1	404							.60	.45	.01		--				
		1																				S
02/15/73	2400		9.0	50	F			--	--	--	--	--	--	35	13	1.8	--	--		156		
0830	2400		81	10	C	8.1	367							.73	.37	.03		--				
		1																				S
03/14/73	2400		7.0	52	F			--	--	--	--	--	--	22	12	2.1	--	--		132	32	
1100	2400		65	11	C	8.0	312							.46	.34	.03		--				
		1																				S
04/10/73	2400		13.0	61	F			--	--	--	--	--	--	38	12	2.0	--	--		136	2	
1030	2400		134	16	C	8.4	315							.79	.34	.03		--				
		1																				S
05/10/73	2400		7.0	64	F			--	--	--	--	--	--	25	13	1.6	--	--		138	8	
1045	2400		75	18	C	8.0	289							.52	.37	.03		--				
		1																				S
06/07/73	2400		9.0	72	F			--	--	--	--	--	--	17	12	.0	--	--		142	15	
1130	2400		104	22	C	8.1	334							.35	.34	.00		--				
		1																				S
07/11/73	2400		8.0	75	F			--	--	--	--	--	--	32	12	1.3	--	--		148	8	
1115	2400		98	24	C	8.0	341							.67	.34	.02		--				
		1																				S

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                                          MINERAL ANALYSES OF SURFACE WATER

 DATE      SAMPLER  G.H.   DO     TEMP   FIELD                                  MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME      LAB      Q      SAT           LABORATORY   MINERAL CONSTITUENTS IN  MILLIEQUIVALENTS PER LITER
                    DEPTH                  PH     EC                            PERCENT REACTANCE VALUE      B     F      TDS     TH     TURB    REM
                                                    CA     MG     NA     K    CO3   HCO3   SO4    CL    NO3           SIO2    SUM    NCH     SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 709.9 137.6    ANDERSON RESERVOIR AT DAM                                CONTINUED

07/12/72  2400           10.0  77  F                   --     --     --     --    --     --     --     --   --      --    --
 1100     2400            122  25  C                                                                                     --
                   1

09/11/72  2400            8.0  61  F                   54     76     22    2.5   2.1    219     --     14   .3      --    .3     416     200     7      E
 .0930    2400             82  16  C  8.2     449    2.69   6.25    .96   .06   .07   3.59          ..39  .00            --             264    0.5
                   1                                   27     63     10     1                                                                         S.

09/11/72  2400            9.0  73  F                   --     --     --     --    --     --     --     --   --      --    --
 1250     2400            106  23  C                                                                                     --
                   1

10/06/72  2400           10.0  68  F                   --     --     --     --    --     --     --     --   --      --    --
 0830     2400            112  20  C                                                                                     --
                   1

12/07/72  2400            8.0  54  F  8.3              53     17     24    3.4   1.2    207     50     15   .3     .14    --     404     206     4      E
 1030     2400             76  12  C  7.9     464    2.67   1.44   1.04   .09   .04   3.39   1.04    .42  .00            --     267      34    0.7     T
                   1                                   51     27     20     2     1     69     21      9                                                S

01/22/73  2400                                         --     --     --     --    --     --     29     16   .5      --    --             180
 1000     2400                        8.1     404                                              .60    .45  .01            --
                   1                                                                                                                                  S

02/15/73  2400            9.0  50  F                   --     --     --     --    --     --     35     13  1.8      --    --             156
 0830     2400             81  10  C  8.1     367                                              .73    .37  .03            --
                   1                                                                                                                                  S

03/14/73  2400            7.0  52  F                   --     --     --     --    --     --     22     12  2.1      --    --             132    32
 1100     2400             65  11  C  8.0     312                                              .46    .34  .03            --
                   1                                                                                                                                  S

04/10/73  2400           13.0  61  F                   --     --     --     --    --     --     38     12  2.0      --    --             136     2
 1030     2400            134  16  C  8.4     315                                              .79    .34  .03            --
                   1                                                                                                                                  S

05/10/73  2400            7.0  64  F                   --     --     --     --    --     --     25     13  1.6      --    --             138     8
 1045     2400             75  18  C  8.0     289                                              .52    .37  .03            --
                   1                                                                                                                                  S

06/07/73  2400            9.0  72  F                   --     --     --     --    --     --     17     12   .0      --    --             142    15
 1130     2400            104  22  C  8.1     334                                              .35    .34  .00            --
                   1                                                                                                                                  S.

07/11/73  2400            8.0  75  F                   --     --     --     --    --     --     32     12  1.3      --    --             148     8
 1115     2400             96  24  C  8.0     341                                              .67    .34  .02            --
                   1                                                                                                                                  S
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                                          MINERAL ANALYSES OF    FACE WATER

 DATE     SAMPLER  G.H.    DO     TEMP   FIELD                                    MILLIGRAMS PER LITER        MILLIGRAMS PER LITER
 TIME       LAB     Q      SAT          LABORATORY   MINERAL CONSTITUENTS IN      MILLIEQUIVALENTS PER LITER
                  DEPTH                   PH    EC                                PERCENT REACTANCE VALUE      B      F      TDS    TH    TURB   REM
                                                      CA    MG    NA    K   CO3   HCO3    SO4    CL    NO3          SIO2    SUM    NCH   SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 709.9 137.6    ANDERSON RESERVOIR AT DAM                                  CONTINUED

08/07/73  2400            9.0   75  F                 --    --    --    --   --    --      20     12     .2     --     --            150     4
  1130    2400            108   24  C   8.4   310                                         .42    .34    .00            --
                    1                                                                                                                       S

09/06/73  2400            8.0   70  F                 --    --    --    --   --    --      20     12     .8     --     --            142     2
  0900    2400             91   21  C   7.9   331                                         .42    .34    .01            --
                    1                                                                                                                       S

10/03/73  2400            8.0   68  F                 --    --    --    --   --    --      19     12     .6     --     --            145    10
  1130    2400             89   20  C   8.0   347                                         .40    .34    .01            --
                    1                                                                                                                       S

10/30/73  2400            8.0   63  F                 --    --    --    --   --    --      34     13     .8     --     --            146     1
  1130    2400             84   17  C   7.9   344                                         .71    .37    .01            --
                    1                                                                                                                       S

12/11/73  2400            8.0   55  F                 --    --    --    --   --    --      25     21     .5     --     --            160    15
  0900    2400             77   13  C   7.9   361                                         .52    .59    .01            --
                    1                                                                                                                       S

01/09/74  2400            9.0   37  F                 --    --    --    --   --    --      37     12    1.3     --     --            160     8
  0830    2400             68    3  C   8.2   367                                         .77    .34    .02            --
                    1                                                                                                                       S

02/07/74  2400           10.0   50  F                 --    --    --    --   --    --      30     12     .5     --     --            154     5
  1000    2400             90   10  C   8.2   356                                         .62    .34    .01            --
                    1                                                                                                                       S

03/06/74  2400           10.0   52  F                 --    --    --    --   --    --      30     11     .4     --     --            150     0
  1130    2400             92   11  C   8.3   349                                         .62    .31    .01            --
                    1                                                                                                                       S

04/03/74  2400           10.0   59  F                 --    --    --    --   --    --      30     11     .1     --     --            150     9
  1030    2400            101   15  C   8.2   342                                         .62    .31    .00            --
                    1                                                                                                                       S

05/01/74  2400            9.0   63  F                 --    --    --    --   --    --      33     13     .3     --     --            148     2
  1130    2400             95   17  C   8.2   341                                         .69    .37    .00            --
                    1                                                                                                                       S

06/04/74  2400            8.0   68  F                 --    --    --    --   --    --      43     14     .3     --     --     172    154     5
  1100    2400             89   20  C   8.0   354                                         .90    .39    .00            --
                    1                                                                                                                       S

07/08/74  2400            5.0   61  F                 --    --    --    --   --    --      30     11     .3     --     --     348    150     0      E
  1100    2400             51   16  C   8.0   340                                         .62    .32    .00            --
                    1
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MINERAL ANALYSES OF FACE WATER

E6 R 709.9 137.6 ANDERSON RESERVOIR AT DAM CONTINUED

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP		FIELD LABORATORY PH	EC	CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	B	F SIO2	TDS SUM	TH NCH	TURB SAR	REM
08/08/74	2400		8.0	75	F			--	--	--	--	--	--	30	11	.1	--	--	220	154	0	
1100	2400		96	24	C	7.9	341							.62	.32	.00		--				
		1																				
09/04/74	2400		7.0	75	F			--	--	--	--	--	--	37	10	.6	--	--	384	154	6	E
1100	2400		84	24	C	7.9	352							.77	.28	.01		--				
		1																				
10/03/74	2400		7.0	70	F			--	--	--	--	--	--	40	12	.5	--	--	280	162	12	E
1130	2400		80	21	C	7.9	361							.83	.34	.01		--				
		1																				
11/05/74	2400		7.0	63	F			--	--	--	--	--	--	38	11	.2	--	--	344	160	3	E
1115	2400		74	17	C	7.9	363							.79	.31	.00		--				
		1																				
12/05/74	2400		7.0	57	F			--	--	--	--	--	--	32	11	.3	--	--	284	158	0	E
1130	2400		69	14	C	7.8	356							.67	.31	.00		--				
		1																				
02/06/75	2400							--	--	--	--	--	--	40	12	1.1	--	--	232	160		
1100	2400					8.3	362							.83	.34	.02		--				
		1																				
04/04/75	2400		10.7	54	F			--	--	--	--	--	--	43	11	.3	--	--	252	154	6	
1130	2400		101	12	C	8.0	360							.90	.31	.00		--				
		1																				
06/04/75	2400		9.5			8.4		--	--	--	--	--	--	35	13	.5	--	--	356	172	9	E
1130	2400					8.0	308							.73	.37	.01		--				
		1																				S
08/12/75	2400							--	--	--	--	--	--	38	11	.1	--	--	356	154		E
1110	2400					8.0	372							.79	.31	.00		--				
		1																				
10/08/75	2400							--	--	--	--	--	--	39	13	.1	--	--	348	158		E
1000	2400					7.6	365							.81	.37	.00		--				
		1																				
12/10/75	2400		9.1	55	F		360	--	--	--	--	--	--	37	13	.0	--	--	368	164		
1230	2400		88	13	C	8.1								.77	.37	.00		--				
		1																				
02/04/76	2400		11.2	54	F	8.4	385	--	--	--	--	--	--	47	18	.2	--	--		158		
1100	2400		106	12	C	8.2	404							.98	.51	.00		--				
		1																				S

P

MINERAL ANALYSES OF RFACE WATER

MINERAL CONSTITUENTS IN MILLIGRAMS PER LITER / MILLIEQUIVALENTS PER LITER / PERCENT REACTANCE VALUE — MILLIGRAMS PER LITER

DATE TIME	SAMPLER LAB	G.H. Q DEPTH	DO SAT	TEMP	FIELD LABORATORY PH	EC	CA	MG	NA	K	CO3	HCO3	SO4	CL	NO3	B	F SIO2	TDS SUM	TH NCH	TURB SAR	REM
E6 R 709.9 137.6 ANDERSON RESERVOIR AT DAM CONTINUED																					
04/12/76	2400		11.4	59 F	8.5	485	43	13	25	2.2	4.3	185	40	11	--	.10	.1	384	164	1A	EX
1036	2400		115	15 C	8.5	394	2.16	1.12	1.09	.06	.14	3.03	.83	.31			--	230	6	0.9	T
		1					49	25	25	1											S
06/04/76	2400		9.4	66.2F	8.4	395	--	--	--	--	--	--	37	12	.1	--	--	395	152	2A	E
1130	2400		103	19.0C	8.1	401							.77	.34	.00		--				
		1																			
08/04/76	2400		8.5	73.4F	8.4	405	--	--	--	--	--	--	38	13	.0	--	--	406	174	9A	E
1100	2400		100	23.0C	8.2	417							.79	.37	.00		--				
		1																			
E6 R 709.9 149.7 ALMADEN RESERVOIR AT DAM																					
11/18/69	2400				8.4		--	--	--	--	--	--	--	10	--	--	--		220		
	2400													.28			--				
		1																			S
06/01/70	2400		7.0	74 F	8.6		--	--	--	--	--	--	20	15	--	--	--			2A	
1000	2400		83	23 C									.42	.42			--				
		1																			S
09/01/70	2400		7.0	76 F	7.7		--	--	--	--	--	--	28	.1	.1	--	--			32A	
1230	2400		85	24 C									.58	.00	.00		--				
		1																			S
09/29/70	2400		9.0	73 F	8.5		--	--	--	--	--	--	12	10	--	--	--			11A	
0730	2400		106	23 C									.25	.28			--				
		1																			S
10/03/72	2400		10.0	68 F			--	--	--	--	--	--	15	9.0	2.2	--	--		176	10A	
1030	2400		111	20 C	8.6	586							.31	.25	.04		--				
		1																			S
11/17/72	2400			50 F			--	--	9.5	2.4	--	--	--	--	.9	--	--				
0855	2400			10 C		305			.41	.06					.01		--				
		1																			S
12/06/72	2400		10.0	50 F	8.5		45	16	12	2.0	2.1	193	15	8.0	.3	.13	--	312	180	5A	E
0915	2400		90	10 C	8.2	355	2.28	1.32	.54	.05	.07	3.16	.31	.23	.00		--	197	19	0.4	T
		1					54	32	13	1	2	84	8	6							S
01/04/73	2400		10.0	36 F	8.5		--	--	--	--	--	--	19	8.0	.1	--	--		200	5A	
0830	2400		73	2 C	8.4	378							.40	.23	.00		--				
		1																			S
02/13/73	2400		10.0	54 F			--	--	--	--	--	--	12	6.0	.2	--	--		96	45A	
0915	2400		94	12 C	8.2	200							.25	.17	.00		--				
		1																			S

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                                       MINERAL ANALYSES OF [illegible]ACE WATER

 DATE     SAMPLER  G.M.   DO     TEMP   FIELD                                 MILLIGRAMS PER LITER       MILLIGRAMS PER LITER
 TIME     LAB      Q      SAT          LABORATORY   MINERAL CONSTITUENTS IN   MILLIEQUIVALENTS PER LITER
                   DEPTH                PH     EC                             PERCENT REACTANCE VALUE      B      F      TDS     TH    TURB    REM
                                                    CA    MG    NA    K    CO3  HCO3   SO4   CL    NO3           SIO2    SUM     NCH   SAR
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

            E6 R 710.0 149.7    ALMADEN RESERVOIR VAULT                                  CONTINUED

08/07/74  2400            6.0  75  F                --    --    --    --    --    --     22   7.0   .0    --    --              200    60A
 0730     2400             72  24  C                                                    .46   .20  .00          --
                   1                                                                                                                     S

09/05/74  2400            3.0  75  F                --    --    --    --    --    --     12   6.0   .4    --    --              332   111A
 1000     2400             36  24  C                                                    .25   .17  .01          --
                   1                                                                                                                     S

10/07/74  2400            4.0  66  F                --    --    --    --    --    --     13   7.0   .6    --    --              256   195A
 1030     2400             44  19  C                                                    .27   .20  .01          --
                   1                                                                                                                     S

11/06/74  2400            7.0  59  F                --    --    --    --    --    --     14   8.0   .5    --    --              252    71A
 1030     2400             70  15  C                                                    .29   .23  .01          --
                   1                                                                                                                     S

12/06/74  2400            7.0  50  F                --    --    --    --    --    --     17   2.0   .8    --    --     428      240   110A    E
 0800     2400             63  10  C  8.3    445                                        .35   .06  .01          --
                   1

04/01/75  2400           10.6  55  F         270    --    --    --    --    --    --     --    --   --    --    --                      29A
 0800     2400            102  13  C                                                                            --
                   1

06/06/75  2400            5.1  55  F  8.1    340    --    --    --    --    --    --     --    --   --    --    --                      18A
 1100     2400             49  13  C                                                                            --
                   1

08/13/75  2400            0.6  66  F  8.1    370    --    --    --    --    --    --    5.0   5.0   .0    --    --     372      194    69A    E
 1045     2400              7  19  C         391                                        .10   .14  .00          --
                   1

10/07/75  2400            6.5  68.0F  8.5    390    --    --    --    --    --    --     18   7.0   .0    --    --     440      204           E
 0800     2400             72  20.0C         420                                        .37   .20  .00          --
                   1

            E6 R 710.2 137.3    ANDERSON RESERVOIR AT CENTER

10/31/74  5050            7.5  63.9F  7.9           --    --    --    --   4.0   140     --    --   --    --    --              125     9A
 0955     5050             80  17.7C  8.5    353                           .13  2.29                            --
                   3                                                                                                                     S
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                                              NUTRIENT ANALYSIS OF   FACE WATER

                                                        FIELD                 NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
 DATE    SAMP    G.H.    TEMP F-PH  F-EC    TURB CACO3 P     D NO2 + NO3 D NO2     D ORG N  D (NH3 +     DIS     D O-PO4   D TOT P
 TIME     LAB  DISCH.   DEPTH        LAB EC F-CO2 CACO3 T       T NH3     D NO3     T ORG N  T ORG N)  A.H.PO4  T O-PO 4  T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

           E6 R 707.2 132.9    COYOTE RESERVOIR AT DAM                                   CONTINUED

05/30/72 2400              21  C                                 --       --       --       --                 --       --
  0900   2400               1                   4                --       --       --       --       --        --       --

07/12/72 2400              26  C                                 --       --       --       --                 --       --
  0800   2400               1                  16                --       --       --       --       --        --       --

09/11/72 2400              23  C                                 --       --       --       --                 --       --
  0930   2400               1                   4                --       --       --       --       --        --       --

10/05/72 2400              18  C  8.4     537                    --       --       --       --                 --       --
  1100   2400               1                                    --       --       --       --       --        --       --

11/06/72 2400              18  C  8.5           45A     0        --       --       --       --                .02       --
  0900   2400               1         517       32    194        --       --       --       --       --        --       --

12/02/72 2400               9  C                                 --       --       --       --                 --       --
  0900   2400               1                  16                --       --       --       --       --        --       --

12/08/72 2400              10  C  8.1            7A     0        --       --       --       --                .20       --
  0900   2400               1         376       12    124        --      .05       --       --       --        --       --

01/24/73 2400              10  C  7.9     651                    --       --       --       --                .07       --
  1030   2400               1         651       16     84        --      .07       --       --       --        --       --

02/20/73 2400              11  C  8.3           78A              --       --       --       --                .22       --
  1000   2400               1         367        2     72        --      .32       --       --       --        --       --

03/14/73 2400              11  C                32A              --       --       --       --                .09       --
  0945   2400               1         256        2     94        --      .26       --       --       --        --       --

04/10/73 2400              15  C                10A     1        --       --       --       --                .06       --
  0800   2400               1         222        2    104        --      .11       --       --       --        --       --

05/10/73 2400              16  C                 3A              --       --       --       --                .19       --
  0800   2400               1                    2    107        --      .14       --       --       --        --       --

06/07/73 2400              22  C                15A              --       --       --       --                .04       --
  0830   2400               1         311        0    114        --      .11       --       --       --        --       --

07/11/73 2400              22  C                13A              --       --       --       --                .02       --
  0900   2400               1         306        0    116        --      .09       --       --       --        --       --

08/07/73 2400              26  C                 9A              --       --       --       --                .02       --
  0830   2400               1         261        0    116        --      .10       --       --       --        --       --

09/05/73 2400              22  C                 4A              --       --       --       --                .07       --
  0800   2400               1         321        0    128        --       --       --       --       --        --       --

10/03/73 2400              19  C                 2A              --       --       --       --                .03       --
  0930   2400               1         337        4    134        --       --       --       --       --        --       --
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                                NUTRIENT ANALYSIS OF   ACE WATER

                                                  FIELD                              NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
   DATE    SAMP     G.H.     TEMP F-PH  F-EC    TURB CACO3 P      D NO2 + NO3 D NO2     D ORG N  D (NH3 +      DIS     D O-PO4    D TOT P
   TIME     LAB  DISCH.    DEPTH       LAB EC  F-CO2 CACO3 T         T NH3    D NO3     T ORG N  T ORG N)   A.H.PO4   T O-PO 4   T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              E6 R 707.2 132.9    COYOTE RESERVOIR AT DAM                                    CONTINUED

 10/30/73 2400            17  C               6A                       --        --        --        --                  .01       --
   1000   2400                 1       347    6   128                  --       .11        --        --        --         --        --

 12/12/73 2400            12  C               9A                       --        --        --        --                  .05       --
   1000   2400                 1              2   114                  --       .14        --        --        --         --        --

 01/02/74 2400             5  C                A                       --        --        --        --                  .01       --
   1030   2400                 1              6                        --       .17        --        --        --         --        --

 02/06/74 2400            10  C        340   30A                       --        --        --        --                  .05       --
   0900   2400                 1       340    8   100                  --       .10        --        --        --         --        --

 02/07/74 2400             8  C               7A                       --        --        --        --                  .03       --
   0845   2400                 1       281    6   106                  --       .09        --        --        --         --        --

 03/06/74 2400            14  C              49A                       --        --        --        --                  .01       --
   0930   2400                 1       257    6    94                  --       .09        --        --        --         --        --

 04/03/74 2400            12  C              16A                       --        --        --        --                  .01       --
   0900   2400                 1       267    4   105                  --       .00        --        --        --         --        --

 04/04/74 2400            12  C        255   20A                       --        --        --        --                  .02       --
   0900   2400                 1       267    4    96                  --       .06        --        --        --         --        --

 05/01/74 2400            15  C        290    5A                       --        --        --        --                  .01       --
   0900   2400                 1       297   10   106                  --       .02        --        --        --         --        --

 06/04/74 2400            21  C        290    4A                       --        --        --        --                  .02       --
   0900   2400                 1       300    8   110                  --       .05        --        --        --         --        --

 07/08/74 2400            22  C        325    1A<                      --        --        --        --                  .00       --
   0900   2400                 1       315    8   116                  --       .00        --        --        --         --        --

 08/08/74 2400            25  C        320    3A                       --        --        --        --                  .04       --
   0830   2400                 1       308    0   114                  --       .02        --        --        --         --        --

 09/04/74 2400            23  C               9A                       --        --        --        --                  .08       --
   0830   2400                 1       313    4   120                  --       .00        --        --        --         --        --

 10/03/74 2400            20  C        320   10A                       --        --        --        --                  .10       --
   1000   2400                 1       314    0   126                  --       .00        --        --        --         --        --

 11/05/74 2400            16  C               4A                       --        --        --        --                  .05       --
          2400                 1       326    4   126                  --       .00        --        --        --         --        --

 12/05/74 2400            13  C        335    2A                       --        --        --        --                  .25       --
   0915   2400                 1       334    0   132                  --       .02        --        --        --         --        --

 06/04/75 2400            22  C        295   10A                       --        --        --        --                  .02       --
   0820   2400                 1       368    0   112                  --       .19        --        --        --         --        --
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NUTRIENT ANALYSIS OF FACE WATER

NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER

E6 R 707.2 132.9 COYOTE RESERVOIR AT DAM CONTINUED

DATE TIME	SAMP LAB	G.H. DISCH.	TEMP DEPTH	F-PH	F-EC LAB EC	TURB F-CO2	FIELD CACO3 CACO3	P T	D NO2 + NO3 T NH3	D NO2 D NO3	D ORG N T ORG N	D (NH3 + T ORG N)	DIS A.H.PO4	D O-PO4 T O-PO 4	D TOT P T TOT P	REM
08/12/75	2400		19 C		290				--	--	--	--		.01	--	
0930	2400		1		290	18	118		--	.00	--	--	--	--	--	
04/12/76	2400		15 C	8.4	350	2A			--	--	--	--		--	--	
0916	2400		1		362	2	140		--	--	--	--	--	--	0.022	
06/04/76	2400		18.0C	8.4	365	2A			--	--	--	--		--	--	
1000	2400		1		378	4	150		--	0.0	--	--	--	--	0.025	
08/04/76	2400		23 C	8.6	390	5A	0		--	--	--	--		--	--	
0900	2400		1		392	0	150		--	0.0	--	--	--	--	0.02	

E6 R 707.2 133.1 COYOTE RESERVOIR VAULT

DATE TIME	SAMP LAB	G.H. DISCH.	TEMP DEPTH	F-PH	F-EC LAB EC	TURB F-CO2	FIELD CACO3 CACO3	P T	D NO2 + NO3 T NH3	D NO2 D NO3	D ORG N T ORG N	D (NH3 + T ORG N)	DIS A.H.PO4	D O-PO4 T O-PO 4	D TOT P T TOT P	REM
10/07/69	2400			7.3		10A			--	--	--	--		0.02	--	
1430	2400		1			12	160		--	--	--	--	--	--	--	
11/09/69	2400			8.0		10A			--	--	--	--		0.01	--	
	2400		1				160		--	--	--	--	--	--	--	
12/29/69	2400			8.1		2A			--	--	--	--		0.03	--	
	2400		1				220		--	--	--	--	--	--	--	
02/03/70	2400			8.1		42A			--	--	--	--		0.01	--	
0945	2400		1				110		--	.01	--	--	--	--	--	
03/03/70	2400			8.2		38A			--	--	--	--		0.05	--	
	2400		1				70		--	.05	--	--	--	--	--	
04/02/70	2400			8.4		12A			--	--	--	--		0.05	--	
	2400		1				125		--	.01	--	--	--	--	--	
04/30/70	2400			7.9		5A			--	--	--	--		0.03	--	
	2400		1				120		--	.08	--	--	--	--	--	
06/05/70	2400			7.8					--	--	--	--		0.02	--	
	2400		1				110		--	.03	--	--	--	--	--	
07/01/70	2400		15 C	7.3					--	--	--	--		0.01	--	
1100	2400		1				80		--	.02	--	--	--	--	--	
08/13/70	2400		15 C	7.8		5A			--	--	--	--		0.04	--	
	2400		1				140		--	.00	--	--	--	--	--	
09/04/70	2400		59 F	7.1		3A			--	--	--	--		0.06	--	
0915	2400		1				120		--	.07	--	--	--	--	--	
09/30/70	2400		16 C	7.9		10A			--	--	--	--		0.20	--	
1145	2400		1				120		--	.02	--	--	--	--	--	

NUTRIENT ANALYSIS OF S ACE WATER

NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER

E6 R 707.2 133.1 COYOTE RESERVOIR VAULT CONTINUED

DATE TIME	SAMP LAB	G.H. DISCH.	TEMP DEPTH	F-PH	F-EC LAB EC	TURB F-CO2	FIELD CACO3 CACO3	P T	D NO2 + NO3 T NH3	D NO2 D NO3	D ORG N T ORG N	D (NH3 + T ORG N)	DIS A.H.PO4	D O-PO4 T O-PO 4	D TOT P T TOT P	REM
10/27/70	2400		14 C	7.9		1A			--	--	--	--		0.22	--	
0935	2400		1			32	130		--	.00	--	--	--	--	--	
11/30/70	2400		14 C	8.2		15A			--	--	--	--		0.13	--	
0930	2400		1			12	150		--	.00	--	--	--	--	--	
01/04/71	2400		11 C	8.1		5A			--	--	--	--		.01	--	
1000	2400		1			8	190		--	.02	--	--	--	--	--	
01/04/71	2400		8 C	8.0		15A			--	--	--	--		0.05	--	
1000	2400		1			16	130		--	.04	--	--	--	--	--	
02/04/71	2400		9 C	8.0		2A			--	--	--	--		0.06	--	
0930	2400		1			12	125		--	.02	--	--	--	--	--	
03/11/71	2400		11 C			4A			--	--	--	--		0.02	--	
1015	2400		1			10	110		--	.02	--	--	--	--	--	
03/29/71	2400		11 C	7.5		9A			--	--	--	--		0.06	--	
1025	2400		1			20	180		--	.02	--	--	--	--	--	
04/26/71	2400		11 C	7.3		4A			--	--	--	--		0.08	--	
0830	2400		1			20	130		--	.02	--	--	--	--	--	
05/17/71	2400		13 C	7.9		5A			--	--	--	--		0.01	--	
0900	2400		1			16	130		--	.02	--	--	--	--	--	
06/26/71	2400		16 C	7.4		9A			--	--	--	--		0.03	--	
1015	2400		1			28	130		--	.01	--	--	--	--	--	
08/04/71	2400		23 C	7.5		2A			--	--	--	--		0.10	--	
1000	2400		1			24	140		--	.00	--	--	--	--	--	
09/07/71	2400		20 C	8.0		2A			--	--	--	--		0.02	--	
1030	2400		1			16	160		--	.00	--	--	--	--	--	
09/30/71	2400		17 C	7.7		20A			--	--	--	--		0.07	--	
1030	2400		1			15	170		--	.01	--	--	--	--	--	
10/28/71	2400			7.7		9A			--	--	--	--		0.01	--	
	2400		1			20	150		--	.01	--	--	--	--	--	
11/29/71	2400		11 C	7.5		15A			--	--	--	--		.02	--	
0930	2400		1			18	140		--	.01	--	--	--	--	--	
02/12/72	2400		8 C	7.8		5A			--	--	--	--		.05	--	
0900	2400		1			14	165		--	.03	--	--	--	--	--	
03/10/72	2400		11 C	7.7		11A			--	--	--	--		.02	--	
1030	2400		1			20	180		--	.02	--	--	--	--	--	

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                                    NUTRIENT ANALYSIS OF S  ACE WATER

                                                      FIELD                  NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
  DATE     SAMP     G.H.     TEMP F-PH   F-EC    TURB CACO3 P     D NO2 + NO3 D NO2    D ORG N  D (NH3 +     DIS     D O-PO4    D TOT P
  TIME      LAB   DISCH.    DEPTH       LAB EC  F-CO2 CACO3 T        T NH3    D NO3    T ORG N  T ORG N)  A.H.PO4   T O-PO4    T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

             E6 R 707.2 133.1    COYOTE RESERVOIR VAULT                              CONTINUED

03/27/72 2400              13  C  8.0       11A                 --        --       --       --                  .02       --
  1000   2400               1                 8   170           --       .02       --       --         --        --       --

05/03/72 2400              14  C  7.6       19A                 --        --       --       --                  .01       --
  0930   2400               1                 8   150           --       .01       --       --         --        --       --

05/30/72 2400              16  C  7.8       21A                 --        --       --       --                  .01       --
  0900   2400               1                12   130           --       .00       --       --         --        --       --

07/12/72 2400              22  C  7.7        3A                 --        --       --       --                  .30       --
  0800   2400               1                20   196           --       .29       --       --         --        --       --

09/11/72 2400              22  C  8.1       24A                 --        --       --       --                  .01       --
  0930   2400               1                 8   196           --      2.00       --       --         --        --       --

10/05/72 2400              21  C  8.4       27A                 --        --       --       --                  .11       --
  1100   2400               1                 6   187           --        .4       --       --         --        --       --

11/06/72 2400              17  C  8.5                           --        --       --       --                  .02       --
  0900   2400               1                16                 --        --       --       --         --        --       --

03/14/73 2400              11  C                                --        --       --       --                  --        --
  0945   2400               1                 4                 --        --       --       --         --        --       --

05/10/73 2400              13  C            11A                 --        --       --       --                  --        --
  0800   2400               1                 6                 --        --       --       --         --        --       --

06/07/73 2400              13  C            22A                 --        --       --       --                  --        --
  0830   2400               1                16                 --        --       --       --         --        --       --

07/11/73 2400              14  C             6A                 --        --       --       --                  --        --
  0900   2400               1                20                 --        --       --       --         --        --       --

08/07/73 2400              14  C             7A                 --        --       --       --                  --        --
  0830   2400               1                16                 --        --       --       --         --        --       --

09/05/73 2400              17  C             5A                 --        --       --       --                  --        --
  0800   2400               1                20                 --        --       --       --         --        --       --

10/03/73 2400              17  C            13A                 --        --       --       --                  --        --
  0830   2400               1                24                 --        --       --       --         --        --       --

10/30/73 2400              20  C             8A                 --        --       --       --                  --        --
  0900   2400               1                 4                 --        --       --       --         --        --       --

12/12/73 2400              11  C            14A                 --        --       --       --                  --        --
  1000   2400               1                 6                 --        --       --       --         --        --       --

01/02/74 2400               6  C             1A                 --        --       --       --                  --        --
  1030   2400               1                 6                 --        --       --       --         --        --       --
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                                  NUTRIENT ANALYSIS OF SURFACE WATER

                                             FIELD                           NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
 DATE    SAMP    G.H.    TEMP F-PH  F-EC    TURB CACO3 P      D NO2 + NO3 D NO2    D ORG N  D (NH3 +     DIS      D O-PO4    D TOT P
 TIME    LAB    DISCH.   DEPTH     LAB EC  F-CO2 CACO3 T        T NH3     D NO3    T ORG N  T ORG N)   A.H.PO4    T O-PO 4   T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              E6 R 707.2 133.1    COYOTE RESERVOIR VAULT                                   CONTINUED

06/04/74 2400             13  C         290   30A                 --        --        --       --                   --        --
 0800    2400              1                   24                 --        --        --       --         --        --        --

08/08/74 2400             14  C         320    3A                 --        --        --       --                   --        --
 0830    2400              1                   24                 --        --        --       --         --        --        --

09/04/74 2400             15  C               15A                 --        --        --       --                   --        --
 0830    2400              1                   24                 --        --        --       --         --        --        --

10/03/74 2400             13  C         320   15A                 --        --        --       --                   --        --
 1000    2400              1                   16                 --        --        --       --         --        --        --

11/05/74 2400             16  C                5A                 --        --        --       --                   --        --
         2400              1                   12                 --        --        --       --         --        --        --

              E6 R 709.6 137.8    ANDERSON RESERVOIR VAULT

10/14/69 2400                  7.7        22                      --        --        --       --                  0.28       --
 1000    2400              1                       120            --        --        --       --         --        --        --

11/14/69 2400                  7.3         8                      --        --        --       --                  0.07       --
 0930    2400              1                       120            --        --        --       --         --        --        --

12/15/69 2400                  7.5        35                      --        --        --       --                   --        --
 1010    2400              1                       120            --        --        --       --         --        --        --

01/27/70 2400                  7.9        35                      --        --        --       --                   --        --
 1000    2400              1                       130            --       0.20       --       --         --        --        --

02/24/70 2400                  7.8        40                      --        --        --       --                  0.09       --
 1000    2400              1                       140            --       0.06       --       --         --        --        --

04/01/70 2400                  8.3         3                      --        --        --       --                  0.11       --
 1000    2400              1                       100            --       0.14       --       --         --        --        --
04/29/70 2400                  8.0        16                      --        --        --       --                  0.13       --
 1000    2400              1                       130            --       0.14       --       --         --        --        --

05/20/70 2400             12  C  8.3       2                      --        --        --       --                  0.24       --
 1000    2400              1                       110            --       0.18       --       --         --        --        --

06/26/70 2400             13  C  7.8      10                      --        --        --       --                  0.02       --
 0930    2400              1                       130            --       0.18       --       --         --        --        --

08/07/70 2400             13  C  8.2       2                      --        --        --       --                  0.02       --
 0850    2400              1                       140            --       0.12       --       --         --        --        --

09/03/70 2400             13.5C  8.3       1                      --        --        --       --                  0.03       --
 0955    2400              1                       120            --       0.80       --       --         --        --        --
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                              NUTRIENT ANALYSIS OF SURFACE WATER

                                             FIELD                          NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
 DATE   SAMP    G.H.    TEMP F-PH  F-EC   TURB CACO3 P'     D NO2 + NO3 D NO2    D ORG N  D (NH3 +      DIS     D O-PO4   D TOT P
 TIME    LAB  DISCH.   DEPTH     LAB EC  F-CO2 CACO3 T        T NH3       D NO3    T ORG N  T ORG N)   A.H.PO4   T O-PO 4  T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

          E6 R 709.6 137.8    ANDERSON RESERVOIR VAULT                          CONTINUED

10/01/70 2400          13.5C  8.1          5                 --          --       --       --                  0.03      --
 0830    2400             1                     130          --        0.11       --       --          --        --        --

11/02/70 2400          14.0C  7.6         42                 --          --       --       --                  0.04      --
 0900    2400             1                     115          --        0.06       --       --          --        --        --

12/01/70 2400          14.0C  8.1         43                 --          --       --       --                  0.03      --
 0930    2400             1                     130          --        0.03       --       --          --        --        --

01/05/71 2400          11.0C  7.3         68                 --          --       --       --                  0.04      --
 0930    2400             1                20   140          --        0.06       --       --          --        --        --

02/04/71 2400          10.0C  8.3                            --          --       --       --                  0.04      --
 1115    2400             1                                  --          --       --       --          --        --        --

03/12/71 2400          10.0C  7.5         35                 --          --       --       --                  0.01      --
 0850    2400             1                 8   130          --        0.04       --       --          --        --        --

03/30/71 2400          10.0C  7.9         80                 --          --       --       --                  0.00      --
 1140    2400             1                     150          --        0.07       --       --          --        --        --

04/27/71 2400          10.0C  7.7         50                 --          --       --       --                  0.02      --
 0915    2400             1                16   150          --        0.07       --       --          --        --        --

05/18/71 2400          11.0C  8.2          8                 --          --       --       --                  0.02      --
 1000    2400             1                      90          --        0.10       --       --          --        --        --

06/26/71 2400          12.0C  7.2                            --          --       --       --                  0.03      --
 1230    2400             1                16   130          --        0.07       --       --          --        --        --

08/06/71 2400          12.0C  7.5          1                 --          --       --       --                  0.01      --
 0915    2400             1                20   150          --        0.06       --       --          --        --        --

09/01/71 2400          12.0C  7.1         11                 --          --       --       --                  0.02      --
 1330    2400             1                12   130          --        0.11       --       --          --        --        --

09/29/71 2400          12.0C  7.3         20                 --          --       --       --                  0.04      --
 0930    2400             1                16   140          --        0.08       --       --          --        --        --

10/29/71 2400          12  C  7.2         19                 --          --       --       --                  0.02      --
 0830    2400             1                16   160          --        0.06       --       --          --        --        --

11/30/71 2400          12  C  8.2         72                 --          --       --       --                  0.05      --
 0900    2400             1                      90          --        0.06       --       --          --        --        --

01/05/72 2400          10  C  8.0          2                 --          --       --       --                  0.01      --
 1000    2400             1                     170          --        0.05       --       --          --        --        --

02/11/72 2400           9  C  8.2         48                 --          --       --       --                  0.02      --
 0900    2400             1                     160          --        0.22       --       --          --        --        --
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NUTRIENT ANALYSIS OF S[illegible]ACE WATER

NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER

E5 R 7.9.0 137.8 ANDERSON RESERVOIR VAULT

CONTINUED

DATE TIME	SAMP LAB	G.H. DISCH.	TEMP DEPTH	F-PH	F-EC LAB EC	TURB F-CO2	FIELD CACO3 CACO3	P T	D NO2 + NO3 T NH3	D NO2 D NO3	D ORG N T ORG N	D (NH3 + T ORG N)	DIS A.H.PO4	D O-PO4 T O-PO4	D TOT P T TOT P	REM
03/04/72 [illegible]	2400 2400		9 C 1	8.2		55 12	 160		-- --	-- 0.07	-- --	-- --	 --	0.03 --	-- --	
04/05/72 [illegible]	2400 2400		15 C 1	8.0		39 4	 170		-- --	-- 0.07	-- --	-- --	 --	0.02 --	-- --	
05/01/72 1030	2400 2400		10 C 1	7.3		38 6	 210		-- --	-- 0.06	-- --	-- --	 --	0.01 --	-- --	
05/31/72 0900	2400 2400		11 C 1	7.4		10 6	 150		-- --	-- 0.07	-- --	-- --	 --	0.17 --	-- --	
07/11/72 1250	2400 2400		19 C 1	7.9		12 12	 166		-- --	-- 0.59	-- --	-- --	 --	0.11 --	-- --	
07/12/72 1100	2400 2400		13 C 1	7.9		3 16	 162		-- --	-- 0.19	-- --	-- --	 --	0.16 --	-- --	
10/06/72 0830	2400 2400		19 C 1	7.5		38 12	 172		-- --	-- 0.50	-- --	-- --	 --	0.04 --	-- --	
11/09/72 0930	2400 2400		17 C 1		 449	71 4			-- --	-- 0.07	-- --	-- --	 --	0.03 --	-- --	
12/07/72 1030	2400 2400		 1		 464	8			-- --	-- 0.06	-- --	-- --	 --	0.04 --	-- --	
01/22/73 1000	2400 2400		8 C 1	8.3	 404	92 6			-- --	-- 0.11	-- --	-- --	 --	0.10 --	-- --	
02/15/73 0830	2400 2400		 1		 367				-- --	-- 0.41	-- --	-- --	 --	0.10 --	-- --	
03/14/73 1100	2400 2400		11 C 1		 312	60			-- --	-- 0.48	-- --	-- --	 --	0.15 --	-- --	
04/10/73 1030	2400 2400		11 C 1		 315	22 10			-- --	-- 0.46	-- --	-- --	 --	0.08 --	-- --	
05/10/73 1045	2400 2400		12 C 1		 389	19 8			-- --	-- 0.36	-- --	-- --	 --	0.03 --	-- --	
06/07/73 1130	2400 2400		11 C 1		 334	28 12			-- --	-- 0.00	-- --	-- --	 --	0.10 --	-- --	
07/11/73 1150	2400 2400		12 C 1		 341	21 12			-- --	-- 0.29	-- --	-- --	 --	0.02 --	-- --	
08/07/73 1130	2400 2400		14 C 1		 310	12 2			-- --	-- 0.05	-- --	-- --	 --	0.02 --	-- --	

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                                         NUTRIENT ANALYSIS OF S  ACE WATER

                                                 FIELD                          NUTRIENT CONSTITUENTS IN MILLIGRAMS PFR LITER
 DATE     SAMP     G.H.    TEMP F-PH  F-EC   TURB CACO3 P      D NO2 + NO3 D NO2     D ORG N  D (NH3 +       DIS     D O-PO4   D TOT P
 TIME      LAB  DISCH.    DEPTH        LAB EC F-CO2 CACO3 T       T NH3      D NO3     T ORG N  T ORG N)   A.H.PO4   T O-PO 4  T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

               E6 R 7.9.6 137.8    ANDERSON RESERVOIR VAULT                               CONTINUED

09/05/73 2400             13  C             6                --         --        --       --                   0.02       --
 [illegible] 2400          1          331   22               --        0.20       --       --          --        --        --

10/03/73 2400             13  C            20                --         --        --       --                   0.02       --
 1130    2400              1          347   20               --        0.13       --       --          --        --        --

10/30/73 2400             14  C             9                --         --        --       --                   0.02       --
 1130    2400              1          344   12               --        0.18       --       --          --        --        --

12/11/73 2400             14  C           260                --         --        --       --                   0.03       --
 0900    2400              1          361   12               --        0.12       --       --          --        --        --

01/09/74 2400             10.0C           18A                --         --        --       --                   0.04       --
 0830    2400              1          367                    --        0.30       --       --          --        --        --

02/07/74 2400             11.0C            8A                --         --        --       --                   0.02       --
 1000    2400              1          357    8               --        0.12       --       --          --        --        --

03/06/74 2400             10.0C            1A                --         --        --       --                   0.01       --
 1130    2400              1          349                    --        0.09       --       --          --        --        --

04/03/74 2400             10.0C            9A                --         --        --       --                   0.02       --
 1030    2400              1          342    8               --        0.02       --       --          --        --        --

05/01/74 2400             13.0C           10A                --         --        --       --                   0.02       --
 1130    2400              1          341    8               --        0.06       --       --          --        --        --

06/04/74 2400             13.0C            5A                --         --        --       --                   0.03       --
 1100    2400              1          354   24               --        0.06       --       --          --        --        --

07/08/74 2400             13.0C            2A                --         --        --       --                   0.01       --
 1100    2400              1          340    2               --        0.07       --       --          --        --        --

08/08/74 2400             16.0C            2A                --         --        --       --                   0.02       --
 1100    2400              1          341    0               --        0.02       --       --          --        --        --

09/04/74 2400             12.0C           12A                --         --        --       --                   0.02       --
 1100    2400              1          352   16               --        0.14       --       --          --        --        --

10/03/74 2400             14.0C           20A                --         --        --       --                   0.04       --
 1130    2400              1          361   12               --        0.12       --       --          --        --        --

11/05/74 2400             14.0C            3A                --         --        --       --                   0.04       --
 1115    2400              1          363   16               --        0.04       --       --          --        --        --

12/05/74 2400             13.0C            5A                --         --        --       --                   0.03       --
 1130    2400              1          356   12               --        0.06       --       --          --        --        --

02/06/75 2400                               A                --         --        --       --                   0.02       --
 1100    2400              1          362                    --        0.25       --       --          --        --        --
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                                             NUTRIENT ANALYSIS OF S    ACE WATER

                                                 FIELD                    NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
  DATE   SAMP    G.H.    TEMP F-PH  F-EC   TURB CACO3 P     D NO2 + NO3 D NO2      D ORG N  D (NH3 +     DIS     D O-PO4   D TOT P
  TIME    LAB  DISCH.   DEPTH      LAB EC  F-CO2 CACO3 T       T NH3      D NO3      T ORG N  T ORG N)   A.H.PO4   T O-PO 4  T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              E6 R 709.6 137.8    ANDERSON RESERVOIR VAULT                              CONTINUED

04/04/75 2400           11.0C               19A                  --         --       --       --                 0.01       --
  1130   2400              1          360     4                  --       0.07       --       --        --        --        --

06/04/75 2400           12.0C  8.3    340    8A                  --         --       --       --                 0.06       --
  1130   2400              1          308     8                  --       0.12       --       --        --        --        --

08/12/75 2400           15.0C  7.7    340     A                  --         --       --       --                 0.03       --
  1110   2400              1          372                        --       0.03       --       --        --        --        --

10/08/75 2400           20.0C  7.9    345   20A                  --         --       --       --                 0.06       --
  1000   2400              1          365    12                  --       0.02       --       --        --        --        --

12/10/75 2400           13  C         355                        --         --       --       --                  --        --
  1230   2400              1          331     8                  --         --       --       --        --        --       0.11

02/04/76 2400           10.2C  8.3    385   25A     0            --         --       --       --                  --        --
  1100   2400              1          404    12   150            --       0.0598     --       --        --        --       0.048

06/04/76 2400           12  C  8.2    390   52A                  --         --       --       --                  --        --
  1130   2400              1          401    12   155            --       0.041      --       --        --        --       0.044

08/04/76 2400           14.0C  7.6    385   20A     0            --         --       --       --                 0.0        --
  1000   2400              1          417     8   160            --       0.0        --       --        --        --       0.0

              E6 R 709.9 137.6    ANDERSON RESERVOIR AT DAM

06/26/70 2400           22  C                                    --         --       --       --                  --        --
  0930   2400              1                                     --         --       --       --        --        --        --

08/07/70 2400           22  C                                    --         --       --       --                  --        --
  0850   2400              1                                     --         --       --       --        --        --        --

09/03/70 2400           21  C  8.1           1A                  --         --       --       --                 0.05       --
  0955   2400              1                      140            --       0.08       --       --        --        --        --

10/01/70 2400           20  C                                    --         --       --       --                  --        --
  0833   2400              1                                     --         --       --       --        --        --        --

11/02/70 2400           16  C                                    --         --       --       --                  --        --
  0900   2400              1                 12                  --         --       --       --        --        --        --

12/01/70 2400           14  C                                    --         --       --       --                  --        --
  0930   2400              1                 20                  --         --       --       --        --        --        --

01/05/71 2400           11  C                                    --         --       --       --                  --        --
  0930   2400              1                 24                  --         --       --       --        --        --        --

02/04/71 2400           10  C                                    --         --       --       --                  --        --
  1115   2400              1                 12                  --         --       --       --        --        --        --
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                                  NUTRIENT ANALYSIS OF S   ACE WATER

                                                  FIELD               NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
  DATE    SAMP    G.H.    TEMP F-PH  F-EC   TURB CACO3 P    D NO2 + NO3 D NO2    D ORG N  D (NH3 +     DIS     D O-PO4   D TOT P
  TIME     LAB  DISCH.   DEPTH      LAB EC  F-CO2 CACO3 T      T NH3    D NO3    T ORG N  T ORG N)  A.H.PO4    T O-PO 4  T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              E6 R 709.9 137.6    ANDERSON RESERVOIR AT DAM                         CONTINUED

09/11/72 2400            16  C               7A                --       --       --       --                  0.         --
  0930   2400             1           449    0                 --      0.07      --       --         --        --         --

09/11/72 2400            23  C                                 --       --       --       --                  --         --
  1250   2400             1                  0                 --       --       --       --         --        --         --

10/06/72 2400            20  C                                 --       --       --       --                  --         --
  0830   2400             1                  8                 --       --       --       --         --        --         --

12/07/72 2400            12  C  8.3                            --       --       --       --                 0.04        --
  1030   2400             1           464    2                 --      0.06      --       --         --        --         --

01/22/73 2400                                                  --       --       --       --                 0.10        --
  1000   2400             1           404                      --      0.11      --       --         --        --         --

02/15/73 2400            10  C                                 --       --       --       --                 0.10        --
  0830   2400             1           367    6                 --      0.41      --       --         --        --         --

03/14/73 2400            11  C              32A                --       --       --       --                 0.15        --
  1100   2400             1           312    2                 --      0.48      --       --         --        --         --

04/10/73 2400            16  C               2A                --       --       --       --                 0.08        --
  1030   2400             1           315    0                 --      0.46      --       --         --        --         --

05/10/73 2400            18  C               8A                --       --       --       --                 0.03        --
  1045   2400             1           389    0                 --      0.36      --       --         --        --         --

06/07/73 2400            22  C              15A                --       --       --       --                 0.10        --
  1130   2400             1           334    0                 --      0.00      --       --         --        --         --

07/11/73 2400            24  C               8A                --       --       --       --                 0.02        --
  1115   2400             1           341    0                 --      0.29      --       --         --        --         --

08/07/73 2400            24  C               4A                --       --       --       --                 0.02        --
  1130   2400             1           310    0                 --      0.05      --       --         --        --         --

09/06/73 2400            13  C               2A                --       --       --       --                 0.02        --
  0900   2400             1           331    4                 --      0.20      --       --         --        --         --

10/03/73 2400            20  C              10A                --       --       --       --                 0.02        --
  1130   2400             1           347    4                 --      0.13      --       --         --        --         --

10/30/73 2400            17  C               1A                --       --       --       --                 0.02        --
  1130   2400             1           344    6                 --      0.18      --       --         --        --         --

12/11/73 2400            13  C              15A                --       --       --       --                 0.03        --
  0900   2400             1           361    0                 --      0.12      --       --         --        --         --

01/09/74 2400             3  C               3A                --       --       --       --                 0.04        --
  0830   2400             1           367    0                 --      0.30      --       --         --        --         --
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                                             NUTRIENT ANALYSIS OF S   ACE WATER

                                                 FIELD                    NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
  DATE   SAMP    G.H.    TEMP F-PH  F-EC   TURB CACO3 P     D NO2 + NO3 D NO2    D ORG N  D (NH3 +     DIS    D O-PO4   D TOT P
  TIME    LAB  DISCH.   DEPTH     LAB EC  F-CO2 CACO3 T       T NH3     D NO3    T ORG N  T ORG N)   A.H.PO4  T O-PO 4  T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              E6 R 769.9 137.6    ANDERSON RESERVOIR AT DAM                            CONTINUED

02/07/74 2400           10  C                5A                  --        --       --       --                 0.02       --
  1000   2400              1          356     8                  --       0.12      --       --        --        --        --

03/06/74 2400           11  C                0A                  --        --       --       --                 0.01       --
  1130   2400              1          349     0                  --       0.09      --       --        --        --        --

04/03/74 2400           15  C                9                   --        --       --       --                 0.02       --
  1030   2400              1          342     4                  --       0.02      --       --        --        --        --

04/04/74 2400           12  C                6                   --        --       --       --                 0.01       --
  1130   2400              1          360                        --       0.07      --       --        --        --        --

05/01/74 2400           17  C                2                   --        --       --       --                 0.02       --
  1130   2400              1          341     0                  --       0.06      --       --        --        --        --

06/04/74 2400           20  C                5                   --        --       --       --                 0.03       --
  1100   2400              1          354     4                  --       0.06      --       --        --        --        --

07/08/74 2400           16  C                0                   --        --       --       --                 0.01       --
  1100   2400              1          340    16                  --       0.07      --       --        --        --        --

08/08/74 2400           24  C                0                   --        --       --       --                 0.02       --
  1100   2400              1          341     0                  --       0.02      --       --        --        --        --

09/04/74 2400           24  C                6                   --        --       --       --                 0.02       --
  1100   2400              1          352     8                  --       0.14      --       --        --        --        --

10/03/74 2400           21  C               12                   --        --       --       --                 0.04       --
  1130   2400              1          361     4                  --       0.12      --       --        --        --        --

11/05/74 2400           17  C                3                   --        --       --       --                 0.04       --
  1115   2400              1          363     4                  --       0.04      --       --        --        --        --

12/05/74 2400           14  C                0                   --        --       --       --                 0.03       --
  1130   2400              1          356    12                  --       0.06      --       --        --        --        --

02/06/75 2400                                                    --        --       --       --                 0.02       --
  1100   2400              1          362                        --       0.25      --       --        --        --        --

06/04/75 2400           12  C  8.4                               --        --       --       --                 0.06       --
  1130   2400              1          308     9                  --       0.12      --       --        --        --        --

08/12/75 2400                                                    --        --       --       --                 0.03       --
  1110   2400              1          372                        --       0.03      --       --        --        --        --

10/08/75 2400                                                    --        --       --       --                 0.06       --
  1000   2400              1          365                        --       0.02      --       --        --        --        --

12/10/75 2400           13  C         360                        --        --       --       --                  --        --
  1230   2400              1          331     4                  --       0.0       --       --        --        --      0.11
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                                             NUTRIENT ANALYSIS C   URFACE WATER

                                                 FIELD                    NUTRIENT CONSTITUENTS IN MILLIGRAMS PER LITER
  DATE   SAMP    G.H.    TEMP F-PH  F-EC   TURB CACO3 P     D NO2 + NO3 D NO2    D ORG N  D (NH3 +     DIS    D O-PO4   D TOT P
  TIME    LAB  DISCH.   DEPTH     LAB EC   F-CO2 CACO3 T       T NH3     D NO3    T ORG N  T ORG N)   A.H.PO4  T O-PO 4  T TOT P REM
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

              E6 R 709.9 137.6    ANDERSON RESERVOIR AT DAM                            CONTINUED

02/04/76 2400           12  C  8.4    385    4A     0            --        --       --       --                  --        --
  1100   2400              1          404     8   160            --       0.0598    --       --        --        --       0.048

04/12/76 2400           15  C  8.5    485    1A                  --        --       --       --                  --        --
  1036   2400              1          394     0   150            --       0.70      --       --        --        --       0.015

06/04/76 2400           19.0C  8.4    395    2A                  --        --       --       --                  --        --
  1130   2400              1                  4   155            --       0.041     --       --        --        --       0.044

08/04/76 2400           23.0C  8.4    405    9A    10            --        --       --       --                  --        --
  1100   2400              1          417     0   170            --       0.0       --       --        --        --       0.0

              E6 R 709.9 149.7    ALMADEN RESERVOIR AT DAM

11/18/69 2400                  8.4                               --        --       --       --                  --        --
         2400              1                      230            --        --       --       --        --        --        --

06/01/70 2400           74  F  8.6           2A                  --        --       --       --                 0.006      --
  1000   2400              1                      152            --       0.005     --       --        --        --        --

06/30/70 2400           72  F                                    --        --       --       --                  --        --
  0730   2400              1                                     --        --       --       --        --        --        --

08/11/70 2400           25  C                                    --        --       --       --                  --        --
         2400              1                                     --        --       --       --        --        --        --

09/01/70 2400           76  F  7.7          32A                  --        --       --       --                 0.04       --
  1230   2400              1                      180            --       0.03      --       --        --        --        --

09/29/70 2400           73  F  8.5          11A                  --        --       --       --                 0.04       --
  0730   2400              1                      240            --       0.007     --       --        --        --        --

11/03/70 2400           13  C                                    --        --       --       --                  --        --
  0930   2400              1                 28                  --        --       --       --        --        --        --

12/03/70 2400           12  C                                    --        --       --       --                  --        --
  1055   2400              1                 12                  --        --       --       --        --        --        --

01/06/71 2400            8  C                                    --        --       --       --                  --        --
  1000   2400              1                 12                  --        --       --       --        --        --        --

02/08/71 2400            9  C                                    --        --       --       --                  --        --
  0915   2400              1                 16                  --        --       --       --        --        --        --

03/10/71 2400           11  C                                    --        --       --       --                  --        --
  1000   2400              1                 16                  --        --       --       --        --        --        --

03/31/71 2400           14  C                                    --        --       --       --                  --        --
  0930   2400              1                 16                  --        --       --       --        --        --        --
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MINOR ELEMENT ANALYSIS OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ARSENIC	BARIUM CADMIUM	CHROM (ALL) CHROM (HEX)	COPPER IRON	LEAD MANGANESE	MERCURY SELENIUM	SILVER ZINC	REM
		D1 1806.50 PACHECO CREEK SF 1.1 MI SOUTHEAST OF PACHECO LAKE CONTINUED										
12/12/74	3207		0.5	9 C		--	--	--	--	--	--	
1130	5060		895		--	--	--	--	0.0 T	--	--	
		D1 1809.50 PACHECO CREEK 2.3 MILES EAST OF PACHECO LAKE										
02/20/74	3207		2	10 C		--	--	--	--	--	--	
1230	5060		440	7.7	--	--	--	--	0.0	--	--	
05/21/74	3207		0.5	25 C		--	--	--	--	--	--	
1230	5060		760	8.2	--	--	--	0.02 T	0.0 T	--	--	
12/12/74	3207		0.5	8 C		--	--	--	--	--	--	
1230	5060		1060		--	--	--	0.03 T	0.0 T	--	--	
		D1 1850.50 PACHECO CREEK SOUTH FORK NEAR PACHECO LAKE										
02/20/74	3207		3	8.5C		--	--	--	--	--	--	
1000	5060		500	8.0	--	--	--	0.18 T	0.05 T	--	--	
05/21/74	3207		2	18 C		--	--	--	--	--	--	
1030	5060		620		--	--	--	0.02 T	0.0 T	--	--	
12/12/74	3207		0.5	11 C		--	--	--	--	--	--	
1030	5060		945		--	--	--	0.01 T	0.0 T	--	--	
	✓	E6 R 707.2 132.9 COYOTE RESERVOIR AT DAM										
04/12/76	2400			15 C		0. T	0.0 T	0. T	0.0 T	0.000 T	0.0000 T	
0916	2400	1	350	8.4	0.0 T	0.0 T	--	0. T	0.0 T	0.0 T	--	
	✓	E6 R 707.2 133.1 COYOTE RESERVOIR VAULT										
10/07/69	2400					--	--	--	--	--	--	
1430	2400	1		7.3	--	--	--	0.15 D	--	--	--	
	✓	E6 R 709.6 137.8 ANDERSON RESERVOIR VAULT										
10/14/69	2400					--	--	--	--	--	--	
1000	2400	1		7.7	--	--	--	0.12 D	--	--	--	
11/09/72	2400			17 C		--	--	--	--	--	--	
0930	2400				--	--	--	--	0.0	--	--	
12/07/72	2400					--	--	--	--	--	--	
1030					--	--	--	0.1 D	--	--	--	

MINOR ELEMENT ANALYSIS OF SURFACE WATER

CONSTITUENTS IN MILLIGRAMS PER LITER

DATE TIME	SAMP LAB	DEPTH	DISCH EC	TEMP PH	ARSENIC	BARIUM CADMIUM	CHROM (ALL) CHROM (HEX)	COPPER IRON	LEAD MANGANESE	MERCURY SELENIUM	SILVER ZINC	REM
E6 R 709.9 137.6 ANDERSON RESERVOIR AT DAM												
04/12/76	2400			15 C		0. T	0.0 T	0. T	0.0 T	0.000 T	0.000 T	
1036	2400	1	485	8.5	0.00 T	0.00 T	--	0. T	0.0 T	0.00 T	--	
E6 R 711.0 147.5 CALERO RESERVOIR AT DAM												
04/13/76	2400			14 C		0. T	0.0 T	0. T	0.0 T	0.0006 T	0.0004 T	
0800	2400	1	360	8.4	0.0 T	0.0 T	--	0. T	0.0 T	0.0 T	--	
E6 R 712.1 159.3 LEXINGTON RESERVOIR AT DAM												
12/05/72	2400			10 C		--	--	--	--	--	--	
0830	2400	1		8.1	--	--	--	0.00 D	0.00 D	--	--	
04/04/73	2400			13 C		--	--	--	--	--	--	
0730	2400	1			--	--	--	0.69 D	0.02 D	--	--	
05/08/73	2400			12 C		--	--	--	0.00 D	--	--	
1130		1			--	--	--	0.30 D	0.00 D	--	--	
06/05/73	2400			22 C		--	--	--	0.00 D	--	--	
0930	2400	1			--	--	--	0.02 D	0.06 D	--	--	
07/05/73	2400			24 C		--	--	--	--	--	--	
0700	2400	1			--	--	--	0.30 D	0.00 D	--	--	
08/08/73	2400			24 C		--	--	0.00 D	--	--	--	
1115	2400	1			--	0.00 D	--	0.05 D	0.06 D	--	0.00 D	
09/11/73	2400			21 C		--	--	--	--	--	--	
0930	2400	1			--	--	--	0.35 D	0.17 D	--	--	
10/09/73	2400			18 C		--	--	--	--	--	--	
0830	2400	1			--	--	--	0.80 D	0.12 D	--	--	
11/01/73	2400			17 C		--	--	--	--	--	--	
1100	2400	1			--	--	--	0.80 D	0.29 D	--	--	
12/06/73	2400			8 C		--	--	--	--	--	--	
1030	2400	1	241		--	--	--	0.40 D	0.06 D	--	--	
01/08/74	2400			9 C		--	--	--	--	--	--	
1100	2400	1			0.000 D	--	--	0.25 D	0.00 D	0.005 D	--	
02/06/74	2400			8 C		--	--	0.00 D	--	--	--	
0745	2400	1			--	0.00 D	--	0.4 D	0.00 D	--	0.05 D	
03/08/74	2400			11 C		--	--	--	--	0.005 D	--	
1100	2400	1			--	--	--	1.5 D	0.05 D	--	--	
04/05/74	2400			14 C		--	0.00 D	--	0.00 D	--	--	
0915	2400	1			--	--	--	--	0.00 D	--	--	

MISCELLANEOUS CONSTITUENTS IN SURFACE WATER

DATE TIME	SAMP LAB	TEMP EC	DO G.H.	F-PH L-PH	DISCH MBAS	DEPTH TURB	T+L CHLOR	O+G COLOR	SET S ML/L MG/L	BOD SUS S	COD V SUS S	CYANIDE PHENOLS	TOC DOC	IODIDE T ODOR	BROMIDE SULFITE	T SULF D SULF	CC EXT CA EXT
		D1 1809.50			PACHECO CREEK 2.3 MILES EAST OF PACHECO LAKE							CONTINUED					
02/24/75	3207	8 C	15.4		0.5		--	--	0.0 L	--	--	--	--	--	--	--	--
1230	1904	595			--		--	--	--	--	--	--	--	--	--	--	--
03/19/75	3207	11.0C	11.6	8.4	2		--	--	0.0 L	--	--	--	--	--	--	--	--
1100	1904	555			--		--	--	--	--	--	--	--	--	--	--	--
03/31/75	2400	13 C	10.4	8.5		001	--	--	--	2	14	--	7.5	--	--	--	--
	5818	355			--		--	--	--	--	--	--	--	--	--	--	--
04/21/75	2400	13 C	10.3	8.4		001	--	--	--	3	12	--	8.5	--	--	--	--
	5818	370			--		--	--	--	--	--	--	--	--	--	--	--
05/22/75	2400	15 C	9.4	8.6		001	--	--	--	1	12	--	4.6	--	--	--	--
	5818	850			--		--	--	--	--	--	--	--	--	--	--	--
		D1 1850.50			PACHECO CREEK SOUTH FORK NEAR PACHECO LAKE												
02/20/74	3207	8.5C	11.7	8.0	3		--	--	0.0 L	--	--	--	--	--	--	--	--
1000	1904	500			--		--	--	--	--	--	--	--	--	--	--	--
03/21/74	3207	12.5C	10.7	8.0	5		--	--	0.0 L	--	--	--	--	--	--	--	--
1000	1904	443			--		--	--	--	--	--	--	--	--	--	--	--
04/18/74	3207	14 C	10.4	7.5	6		--	--	0.0 L	--	--	--	--	--	--	--	--
0930	1904	430			--		--	--	--	--	--	--	--	--	--	--	--
07/11/74	3207	20 C	10.8	7.4	0.5		--	--	0 L	--	--	--	--	--	--	--	--
1000	1904	800			--		--	--	0.0	--	--	--	--	--	--	--	--
12/12/74	3207	11 C	11.2		0.5		--	--	0.0 L	--	--	--	--	--	--	--	--
1030	1904	945			--		--	--	--	--	--	--	--	--	--	--	--
01/27/75	3207	6 C	11.7	7.2	0.5		--	--	0.0 L	--	--	--	--	--	--	--	--
1030	1904	780			--		--	--	--	--	--	--	--	--	--	--	--
02/23/75	3207	7 C	12.9		1		--	--	0.0 L	--	--	--	--	--	--	--	--
1030	1904	385			--		--	--	--	--	--	--	--	--	--	--	--
03/19/75	3207	11 C	11.1	8.2	14		--	--	0.0 L	--	--	--	--	--	--	--	--
0930	1904	540			--		--	--	--	--	--	--	--	--	--	--	--
	✓	E6 R 707.2 132.9			COYOTE RESERVOIR AT DAM												
04/12/76	2400	15 C	10.0	8.4		1	--	--	--	--	13.2	--	--	--	--	--	--
0916	2400	350			--		--	--	--	--	76	--	--	--	--	--	--

MISCELLANEOUS CONSTITUENTS IN SURFACE WATER

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                                                           SET S
  DATE   SAMP   TEMP  DO   F-PH   DISCH  DEPTH  T+L    O+G  ML/L      BOD      COD    CYANIDE   TOC   IODIDE  BROMIDE  T SULF  CC EXT
  TIME    LAB    EC  G.H.  L-PH    MBAS   TURB CHLOR  COLOR MG/L     SUS S   V SUS S  PHENOLS   DOC   T ODOR  SULFITE  D SULF  CA EXT
*  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

           ✓  E6 R 709.9 137.6    ANDERSON RESERVOIR AT DAM

04/12/76 2400  15  C 11.4   8.5             1    --    --    --       --        9.6     --      --      --      --      --      --
  1030   2400    485              0.0  L         --    --    --       --       56       --      --      --      --      --      --

              E6 R 711.0 147.5    CALERO RESERVOIR AT DAM

04/13/76 2400  14  C 10.2   8.4             1    --    --    --       --       13.2     --      --      --      --      --      --
  0900   2400    350              0.0  L         --    --    --       --       84       --      --      --      --      --      --

              E6 R 712.1 159.3    LEXINGTON RESERVOIR AT DAM

11/01/73 2400  17  C 10.0                   1    --    --    --       --        --     0.00     --      --      --      --      --
  1100   2400                       --           --    --    --       --        --      --      --      --      --      --      --

01/08/74 2400   9  C 11.0                   1    0.0   --    --       --        --      --      --      --      --      --      --
  1100   2400                       --           --    --    --       --        --      --      --      --      --      --      --

03/08/74 2400  11  C 11.0                   1    --    --    --       --        --      --      --      --      --      --      --
  1100   2400                       --           --    --    --     106         --     0.001    --      --      --      --      --

04/05/74 2400  14  C 11.0                   1    --    --    --       --        --      --      --      --      --      --      --
  0915   2400                       --           --    --    --       --       32       --      --      --      --      --      --

08/06/74 2400  27  C  5.0                   1    --    --    --       --        --      --      --      --      --      --      --
  1020   2400    315                --           --    --    --       --       80       --      --      --      --      --      --

09/10/74 2400  24  C  8.0                   1    --    --    --       --        --      --      --      --      --      --      --
  1000   2400    350                --           --    --    --       --       72       --      --      --      --      --      --

10/02/74 2400  21  C  8.0                   1    --    --    --       --        --      --      --      --      --      --      --
  1100   2400                       --           --    --    --       --       84       --      --      --      --      --      --

11/07/74 2400  15  C  7.0                   1    --    --    --       --        --     0.000    --      --      --      --      --
  1030   2400    370                --           --    --    --       --       68       --      --      --      --      --      --

12/04/74 2400  13  C  7.0                   1    --    --    --       --        --      --      --      --      --      --      --
  1030   2400    380                --           --    --    --       --       48       --      --      --      --      --      --

              E6 R 714.8 157.8    VASONA RESERVOIR AT DAM

04/13/76 2400  17  C 10.1   8.4             1    --    --    --       --        --      --      --      --      --      --      --
  0930   2400    460                --           --    --    --       --        --      --      --      --      --      --      --

08/03/76 2400  23.0C  6.9   8.2             8    --    --    --       --        --      --      --      --      --      --      --
  1330   2400    570                --           --    --    --       --       64.0     --      --      --      --      --      --
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APPENDIX F

ANALYSES OF SURFACE WATER

TABLE
ANALYSES OF SURFACE WATER

Anderson Reservoir

Date and time sampled P.S.T	Depth m	Temp. °C	D.O.		EC		pH		Mineral constituents in milligrams per litre																	Percent sodium %
			mg/l	%Sat.	field	lab	field	lab	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Boron (B)	Nitrogen NO_3 (N)	Nitrogen NH_3 (N)	Nitrogen Organic (N)	Phosphorus Ortho (P)	Phosphorus Total (P)	Other constituents	Total dissolved solids	Total Hardness $CaCO_3$	
Center Station No. E6R71021373 (AR-1)																										
10/31/74 0955	1	17.7	7.5			353	7.9	8.5					4	140				0.02	0.00	0.3	0.00	0.01	Turbidity - 9 NTU		125	
10/31/74 1025	8&17c.	17.7				401		8.3	37	18	18	2.1	0	179	40	10	0.1	0.02	0.00	0.3	0.00	0.01	Turbidity - 8 NTU	228	165	19
10/31/74 1055	18&20c.					394		7.9					0	176				0.00	0.00	0.3	0.00	0.01	Turbidity - 8 NTU		156	
10/31/74 1155	25																	0.12	0.00	0.2	0.00	0.01	Turbidity - 6 NTU			
10/31/74 1108	36	12.3	0.0		350		7.2											0.18	0.00	0.3	0.00	0.01	Turbidity - 8 NTU			
10/31/74 1148	47	12.2	0.0		380		7.1											0.12	0.01	0.3	0.00	0.01	Turbidity - 10 NTU			
10/31/74 1115	25, 36, & 47c.					374		7.6	34	16	17	2.0	0	165	37	9.1	0.1	0.60						217	154	19
4/9/75 1325	0-5.5c.					351		8.3					0	157									Turbidity - 1 NTU		146	
4/9/75 1250	10	11.8	9.9		350	351	8.2	7.9	36	14	16	1.9	0	157	36	9.7	0.1	0.07	0.03	0.3	0.01	0.02	Turbidity - 2 NTU CU - 0.01 Fe - 0.03 Mn - 0.00 Zn - 0.15	211	148	19
4/9/75 1310	20	11.0					7.9	8.1					0	168				0.16	0.03	0.3	0.02	0.02	Turbidity - 1 NTU CU - 0.01 Fe - 0.14 Mn - 0.00 Zn - 0.04		141	
5/7/75 1320	0-7.3c.					350		8.2					0	158		11									148	
5/29/75 0945	0-8.3c.					360		8.3					0	167		11									153	
7/1/75 1010	0-9.3c.					370		8.2	35	15	17	1.6	0	169	39	10	0.1	0.60						218	149	20
9/17/75 1300	0-11c.					391		8.1	37	18	18	1.6	0	180	41	11	0.1	0.20						212	166	

TABLE
ANALYSES OF SURFACE WATER

Anderson Reservoir

Date and time sampled P.S.T	Discharge cfs	Temp. °C	D.O. mg/l % Sat.	EC field lab	pH field lab	Mineral constituents in milligrams per litre															Percent sodium %
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Boron (B)	Nitrogen NO_3 NH_3 (N)	Nitrogen Organic (N)	Phosphorus Ortho Total (P)	Other constituents	Total dissolved solids	Total Hardness $CaCO_3$	
North Arm Station No. E6R71131385 (AR-2)																					
10/31/74 1910	1, 10, & 18c	17.6		406	8.2	37	19	18	2.2	0	181	40	9.6	0.1	0.00 0.00	0.3	0.00 0.01	Turbidity - 10 NTU	234	170	18
4/9/75 1550	0-5.5c			354	8.3					0	164							Turbidity - 1 NTU		150	
4/9/75 1520	10	11.7		358	7.6	37	16	16	1.6	0	168	35	9.9	0.1	0.09 0.03	0.3	0.00 0.01	Turbidity - 3 NTU Cu - 0.01 Fe - 0.06 Mn - 0.00 Zn - 0.03	214	159	18
4/9/75 1535	20	11.0			8.1					0	172				0.20 0.04	0.3	0.02 0.03	Turbidity - 2 NTU Cu - 0.00 Fe - 0.06 Mn - 0.00 Zn - 0.05		151	
5/7/75 1120	0-7.3c			353	8.3					0	163		11							149	
5/28/75 1445	0-8.3c			360	8.3					0	165		11							153	
7/1/75 1450	0-9.3c			374	8.2					0	174		12							158	
9/17/75 0945	0-11c			390	8.3					0	178		11							162	

TABLE
ANALYSES OF SURFACE WATER

ANDERSON RESERVOIR

Date and time sampled P.S.T (date)	(time)	Discharge cfs	Temp. °C	D.O. mg/l	D.O. % Sat.	EC field	EC lab	pH field	pH lab	Mineral constituents in milligrams per litre: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Boron (B)	Nitrogen NO_3 (N)	Nitrogen NH_3 (N)	Nitrogen Organic (N)	Phosphorus Ortho	Phosphorus Total (P)	Other constituents	Total dissolved solids	Total Hardness $CaCO_3$	Percent sodium %
South Arm near Dam Station No. E6R70981367 (AR-3)																											
10/31/74	1250	1&19c					391		7.9					0	176		10		0.01	0.00	0.3	0.04	0.04	Turbidity - 7 NTU		160	
South Arm near Marina Station No. E6R70961362 (AR-3A)																											
4/9/75	1200	0-5.5c					350		8.1					0	162									Turbidity - 1 NTU		148	
4/9/75	1040	10	11.8	9.5		365	350	8.2	8.1	36	14	16	1.5	0	156	34	9.2	0.1	0.08	0.01	0.4	0.01	0.02	Turbidity - 2 NTU Cu - 0.01 Fe - 0.11 Mn - 0.00 Zn - 0.18	206	146	19
4/9/75	1125	20	11.0	8.2		355		8.2	8.0					0	165				0.16	0.02	0.3	0.02	0.02	Turbidity - 0 NTU Cu - 0.01 Fe - 0.08 Mn - 0.00 Zn - 0.46		151	
South Arm near Bridge Station No. E6R70921353 (AR-3B)																											
5/7/75	0835	0-7.3c					351		8.3					0	162		11									147	
5/29/75	1310	0-8.3c					360		8.3					0	168		11									153	
6/30/75	1415	0-9.3c					371		8.3					0	173		12									157	
9/17/75	1115	0-11c					386		8.1					0	179		12									166	

TABLE
ANALYSES OF SURFACE WATER

Coyote Reservoir

Date and time sampled P.S.T	Dis-charge cfs	Temp. °C	D.O. mg/l / % Sat.	EC field / lab	pH field / lab	Mineral constituents in milligrams per litre															Percent sodium %
						Calcium (Ca)	Magne-sium (Mg)	Sodium (Na)	Potas-sium (K)	Carbon-ate (CO_3)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Boron (B)	Nitrogen		Phosphorus	Other constituents	Total dis-solved solids	Total Hard-ness $CaCO_3$	
															NO_3 / NH_3 (N)	Organic (N)	Ortho / Total (P)				
										Near Boat Ramp Station No. E6R70601324 (CR-2)											
7/3/75 1010	0-10.3c.			 316	 8.3	33	11	13	1.2	0	140	35	7.5	0.1	1.3				188	127	18
7/3/75 0920	16.3	12.9	0.6	300 298	7.1 8.1					0	136		8.5							128	

TABLE
ANALYSES OF SURFACE WATER

Date and time sampled P.S.T	1/ Dis-charge cfs	Temp. °C	D.O. mg/l % Sat.	EC field lab	pH field lab	Mineral constituents in milligrams per litre															1/ Percent sodium %
						Calcium (Ca)	Magne-sium (Mg)	Sodium (Na)	Potas-sium (K)	Carbon-ate (CO_3)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Boron (B)	Nitrogen NO_3 NH_3 (N)	Nitrogen Organic (N)	Phosphorus Ortho Total (P)	Other constituents	Total dis-solved solids	Total Hard-ness $CaCO_3$	
Las Animas Creek above San Felipe Creek Station No. E6426901 (Sta. LA)																					
2/2/75 0910	2e	7.5	10.7 91	355 374	7.9 8.1					0	82		43		3.3 0.11	1.4	0.07	Turbidity 52 NTU Dis. Organic N. 0.9 Dis. Acid Hydrolyzable P. 0.01		122	35e
2/11/75	1e	9.0	10.6 93	415 444	 8.0					0	171									158	29e
2/21/75		6.0	11.6 95	610 544	 8.1					0	184									174	36e
3/8/75 0700	40e	10.6	9.9 91	120 149	7.5 7.2	13	4.5	9.8	1.5	0	68	6.9	6.8	0.0	0.44 0.13	2.1	0.04 0.65	Dis. Organic N. 0.5	83	50	30e
3/8/75 1740	9e	13.0		295 276	8.0										0.70		0.03	Dis. Organic N. 0.6			
3/9/75 0730	5e	10.3	10.1 92	395 376	8.0										0.68		0.02			130	31e
3/25/75 0825	5e				 8.1					0	117		17						165	90	34e
Las Animas Creek above Shingle Valley Creek Station No. E6426401 (Sta. SF)																					
2/2/75 0950	113	7.7	10.9 93	187 203	8.0 7.3	20	7.3	10	2.0	0	80	17	9.6	0.1	0.63 0.01	1.7	0.06	Turbidity 360 NTU Dis. Organic N. 0.5 Dis. Acid Hydrolyzable P. 0.05	142	80	21
2/2/75 1615	66	8.9	10.6 93	245 252	7.9 8.2					0	100		11		0.70 0.01	1.2	0.05	Turbidity 110 NTU Dis. Organic N. 0.5 Dis. Acid Hydrolyzable P. 0.06		96	24e

(Continued on following page)

1/ Values followed by "e" are estimated.

TABLE
ANALYSES OF SURFACE WATER

Date and time sampled P.S.T	1/ Discharge cfs	Temp. °C	D.O. mg/l / % Sat.	EC field / lab	pH field / lab	Mineral constituents in milligrams per litre: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Boron (B)	Nitrogen: NO_3 / NH_3 (N)	Nitrogen: Organic (N)	Phosphorus: Ortho / Total (P)	Other constituents	Total dissolved solids	Total Hardness $CaCO_3$	1/ Percent sodium %
										Las Animas Creek above Shingle Valley Creek (Continued)											
2/3/75 / 0730	48	7.8	10.9 / 93	307 / 318	7.9 / 8.1					0	128		14		0.64 / 0.01	0.6	0.04	Turbidity 36 NTU		121	24e
2/11/75	54.2	9.0	10.6 / 93	280 / 292	/ 7.9					0	124		14						184	110	25e
2/21/75	14.1	6.0	11.4 / 93	435 / 401	/ 8.0					0	155									142	29e
3/8/75 / 0740	321	10.1	9.7 / 88	165 / 229	7.9 / 7.3	26	3.5	11	2.1	0	107	14	7.4	0.0	0.29 / 0.07	1.8	0.06 / 0.63	Dis. Organic N. 0.4	140	80	22
3/8/75 / 1000	364			160 / 164	7.9 /										0.28 /		0.05 /				
3/8/75 / 1415	238	12.0		185 / 185	7.9 /										0.33 /		0.04 / 0.37	Dis. Organic N. 0.4			
3/9/75 / 0605	132	9.4	10.3 / 92	375 / 267	7.7 / 7.9					0	116				0.43 /		0.03 /			100	25e
3/9/75 / 1625	74	12.0		305 / 282	7.9 / 8.1					0	117				0.45 /		0.03 /			108	23e
3/12/75 / 1030	53			/ 388	/ 8.1					0	174									150	23e
3/14/75 / 0710	62			306 /	8.0 /					0	132		12						176	110	28e
3/25/75 / 0840	151			/ 213	/ 7.8					0	92									77	28e
3/25/75	152			/ 191											0.21 /		0.04 /				
4/9/75 / 1430	30			/ 440	/ 8.0	45	16	24	2.4	0	198	43	18	0.1	1.0 /				264	179	22
4/24/75 / 1200	8			/ 450	/ 8.1					0	178									160	29e

1/ Values followed by "e" are estimated.

TABLE
ANALYSES OF SURFACE WATER

Date and time sampled P.S.T	1/ Dis-charge cfs	Temp. °C	D.O. mg/l % Sat.	EC field lab	pH field lab	Mineral constituents in milligrams per litre									Nitrogen		Phosphorus				1/ Percent sodium %
						Calcium (Ca)	Magne-sium (Mg)	Sodium (Na)	Potas-sium (K)	Carbon-ate (CO_3)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Boron (B)	NO_3 NH_3 (N)	Organic (N)	Ortho Total (P)	Other constituents	Total dis-solved solids	Total Hard-ness $CaCO_3$	
										Shingle Valley Creek at Mouth Station No. E6426201 (Sta. SV)											
2/1/75 1530	2.5e	8.8	10.3 90	550 573	8.3 7.8	29	36	35	2.0	0	271	20	40	0.2	1.0 0.01	0.7	0.16	Turbidity 14 NTU	329	222	25
2/2/75 1030	6.5e	8.3	10.5 91	550 570	8.3 8.1	30	35	35	2.8	0	225	34	46	0.2	2.8 0.07	1.4	0.16	Turbidity 16 NTU Dis. Acid Hydrolyzable P. 0.03	344	220	25
2/11/75	5e	9.0	10.6 93	545 532	8.1	22	34	37	1.9	0	219	31	41	0.2	7.5				303	193	29
3/8/75 0750	90e	10.4		185 204	8.0 7.8					0	101		10		0.54 0.11	2.5	0.17 0.50	Dis. organic N. 0.7		110	0
3/8/75 1425	32e	14.0		280 279	8.0										0.70		0.09				
3/12/75				617	8.2					0	307		38							250	19e
3/14/75 0740	12e			402	8.2					0	186									144	28e
3/25/75	25e			413	8.1	23	24	27	2.1	0	199	18	24	0.1	0.34		0.05		239	157	27
4/9/75	5e			801	8.1					0	381									308	23e
4/24/75				934	8.4					15	408									356	24e
										Coyote Creek near Gilroy Station No. E6430001 (Sta. CC)											
12/4/74 1300	75			473 386	7.8	28	18	22	1.8	0	100	81	17	0.3	1.4 0.04	0.5	0.02 0.02		239	145	25

(Continued on following page)

1/ Values followed by "e" are estimated.

TABLE
ANALYSES OF SURFACE WATER

Date and time sampled P.S.T	1/ Discharge cfs	Temp. °C	D.O. mg/l / % Sat.	EC field / lab	pH field / lab	Mineral constituents in milligrams per litre															1/ Percent sodium %
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Boron (B)	Nitrogen		Phosphorus	Other constituents	Total dissolved solids	Total Hardness $CaCO_3$	
															NO_3 / NH_3 (N)	Organic (N)	Ortho / Total (P)				
										Coyote Creek near Gilroy (Continued)											
12/25/74 1123	8.6			584 424											0.04		0.00				
1/1/75 1445	7.2			583 454											0.03		0.00				
1/7/75 0807	49			438 448	7.9					0	177		16							192	14e
1/8/75 0930	37.5			440 372											0.05		0.01				
2/2/75 1605	570			240											0.60 0.05	0.9	0.02 0.21				
2/11/75 1215	243			266 261	7.8	27	9.7	11	1.0	0	117	24	8.1	0.1	0.25		0.01		158	108	18
2/18/75 0815	61			401 333											0.04		0.00				
3/8/75 1120	1360			165 162	7.6	16	6.7	7.2	1.3	0	77	10	4.6	0.0	0.07 0.03	0.3	0.00 0.14		101	68	18
3/14/75 0930	237			257 264	7.9					0	123		6.6							110	17e
3/14/75 1700				262 264											0.04		0.01				
3/31/75 0806	321			344											0.05 0.00	0.1	0.00 0.03				
4/7/75 0840	107			338 325											0.04		0.01				
4/17/75 0846	53			413 338											0.02		0.01				

(Continued on following page)

1/ Values followed by "e" are estimated.

TABLE
ANALYSES OF SURFACE WATER

Date and time sampled P.S.T	Dis- charge 1/ cfs	Temp. °C	D.O. mg/l % Sat	EC field lab	pH field lab	Mineral constituents in milligrams per litre															1/ Percent sodium %
						Calcium (Ca)	Magne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Carbon- ate (CO$_3$)	Bicar- bonate (HCO$_3$)	Sul- fate (SO$_4$)	Chlo- ride (Cl)	Boron (B)	Nitrogen NO$_3$ NH$_3$ (N)	Nitrogen Organic (N)	Phosphorus Ortho Total (P)	Other constituents	Total dis- solved solids	Total Hard- ness CaCO$_3$	
										Coyote Creek near Gilroy (Continued)											
4/28/75	29			 389	 8.2					0	150									150	23e
5/14/75 0830				485 438	 8.0					0	175									179	18e
5/28/75 0812	6			413 414	 8.0					0	151									158	24e
6/11/75 0815	3			408 410	 8.1					0	142									152	26e
7/9/75 1006	1			470 464	 8.1					0	173									188	19e

1/ Values followed by "e" are estimated.

APPENDIX G

WATER QUALITY DATA SUMMARY

WATER QUALITY DATA SUMMARY

Anderson Reservoir

Station Name & No. Date Time PST	pH Temp. °C	D.O. mg/l %Sat.	Depth Sample Bottom m.	E.C. Field Lab µmho	Total Hardness HCO3 mg/l	Nitrogen(N) NO3 mg/l	Nitrogen(N) NH3 Organ. mg/l	PO4(P) Ortho Total mg/l	Turbidity TU Fluorometer x10	Phytoplankton 1/ Organisms per ml/csu per ml Blue Green Algae	Green Algae	Flagellates	Diatoms	Total mg/l CSU/ml	Major Genus Genus Name csu per ml.
Center E6R71021373 (AR-1)															
10/31/74 0955	7.9 17.7	7.5 80	1 48.9	— 353	125 140	0.02	0.00 0.3	0.00 0.01	9 17						
— 1025	—	—	0&17c	— 401	165 179	0.02	0.00 0.3	0.00 0.01	8 (13)av						
— 1055	—	—	18&20c	— 394	156 176	0.00	0.00 0.3	0.00 0.01	8 (10)av						
— 1155	— 12.3	—	25	—	—	0.12	0.00 0.2	0.00 0.01	6 9.5						
— 1108	7.2 12.3	—	36	350	—	0.18	0.00 0.3	0.00 0.01	8 9.5						
— 1148	7.1 12.2	—	47	380	—	0.12	0.01 0.3	0.00 0.01	10 10						
— 1115	—	—	25-47c	— 374	154 165	—	—	—	—						

Surface elevation (ft.): 10/31/74 = 603.2
Secchi Disk (ft.): 10/31/74 = 2.0

1/ Cubic standard units per millilitre (csu/ml) x 0.008 = milligrams per litre (mg/l)

WATER QUALITY DATA SUMMARY

Anderson Reservoir

Station Name & No.			Depth	E.C.	Total Hardness	Nitrogen(N)		$PO_4(P)$	Turbidity TU	Phytoplankton[1]					
		D.O.								Organisms per ml/csu per ml				Total	Major Genus
Date Time PST	pH Temp. °C	mg/l %Sat.	Sample Bottom m.	Field Lab µmho	HCO_3 mg/l	NO_3 mg/l	NH_3 Organ. mg/l	Ortho Total mg/l	Fluorometer x10	Blue Green Algae	Green Algae	Flagellates	Diatoms	mg/l CSU/ml	Genus Name csu per ml.
Center (AR-1) (Continued)															
4/9/75 1325	—	—	0-5.5c 55	— 351	146 157	—	—	—	1	440 43	2100 100	3200 330	360 140	4.9 610	Cryptomonas 246
— 1250	8.2 11.8	—	10	350 351	148 157	0.07	0.03 0.3	0.01 0.02	2 31	—	410 4	730 42	500 120	1.4 170	Synedra 74
— 1310	7.9 11.0	—	20	—	—	0.16	0.03 0.3	0.02 0.02	1 16	—	39 0	59 10	79 13	0.2 23	Trachelomonas 9
5/7/75 1320	—	—	0-7.3c 53	— 350	148 158	—	—	—	—	530 51	240 17	40 87	3000 110	2.1 260	Nitzschia 100
— 1405	8.1 13.8	9.5 93	10	—	—	—	—	—	— 19.0	160 22	320 19	40 85	78 3	1.0 130	Glenodinium 84
5/29/75 0945	—	—	0-8.3c 55	— 360	153 167	—	—	—	— 27.5	260 17	450 36	79 6	260 11	0.6 70	Closterium 30
7/1/75 1010	—	—	0-9.3c 50	— 370	149 169	—	—	—	—	—	310 130	730 33	120 6	1.4 170	Closterium 132
9/17/75 1300	—	—	0-11c 49	— 391	166 180	—	—	—	—	63 4	820 15	230 34	200 11	0.5 64	Peridinium 20

Surface elevation (ft.): 4/9/75 = 624.8; 5/7/75 = 625.1; 5/29/75 = 622.9; 7/1/75 = 618.6; 9/17/75 = 608.2

Secchi Disk (m.): 4/9/75 = 1.5; 5/6/75 = 1.7; 7/1/75 = 2.2; 9/17/75 = 3.1

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[1] Cubic standard units per millilitre (csu/ml) x 0.008 = milligrams per litre (mg/l)

WATER QUALITY DATA SUMMARY

Anderson Reservoir

Station Name & No. Date Time PST	pH Temp. °C	D.O. mg/l %Sat.	Depth Sample Bottom m.	E.C. Field Lab µmho	Total Hardness HCO3 mg/l	Nitrogen(N) NO3 mg/l	Nitrogen(N) NH3 Organ. mg/l	PO4(P) Ortho Total mg/l	Turbidity TU Fluorometer x10	Phytoplankton[1/] Organisms per ml/csu per ml Blue Green Algae	Green Algae	Flagellates	Diatoms	Total mg/l CSU/ml	Major Genus Genus Name csu per ml.
North Arm E6R71131385 (AR-2)															
10/31/74 0910	— 17.6	—	1,10& 18c	— 406	170 181	0.00	0.00 0.3	0.00 0.01	10	—	—	—	—	—	—
4/9/75 1550	—	—	0-5.5c	— 354	150 164	—	—	—	1	170 6	1200 11	3700 190	550 170	3.0 380	Flagellate 112
— 1520	— 11.7	—	10	— 358	159 168	0.09	0.03 0.3	0.00 0.01	3	80 3	310 310	120 14	120 43	3.0 370	Closterium 310
— 1535	— 11.0	—	20	— 334	151 172	0.20	0.04 0.3	0.02 0.03	2	—	200 2	59 5	180 91	0.8 98	Synedra 59
5/7/75 1120	—	—	0-7.3c 28	353	149 163	—	—	—	—	240 15	340 9	1600 290	0 0	2.5 310	Ceratium 184
5/28/75 1445	—	—	0-8.3c 27	— 360	153 165	—	—	—	—	39[2/] 4[2/]	690 44	1100 41	240 31	1.0 120	Closterium 30
7/1/75 1450	—	—	0-9.3c 26	— 374	158 174	—	—	—	—	—	87 29	49 6	31 26	0.5 61	Closterium 28
9/17/75 0945	—	—	0-11c 23	— 390	162 178	—	—	—	—	42[2/] 2[2/]	740 7	190 140	360 6	1.3 160	Ceratium 84

Surface elevation (ft.): 10/31/74 = 603.2; 4/19/75 = 624.8; 5/7/75 = 625.1; 5/28/75 = 623.1; 7/1/75 = 618.6; 9/17/75 = 608.2

Secchi Disk (m.): 10/31/74 = 1.2; 5/28/75 = 1.6

1/ Cubic standard units per millilitre (csu/ml) x 0.008 = milligrams per litre (mg/l)

2/ Yellow-green algae

WATER QUALITY DATA SUMMARY

Anderson Reservoir

Station Name & No. Date Time PST	pH Temp. °C	D.O. mg/l %Sat.	Depth Sample Bottom m.	E.C. Field Lab µmho	Total Hardness HCO3 mg/l	Nitrogen(N) NO3 mg/l	Nitrogen(N) NH3 Organ. mg/l	PO4(P) Ortho Total mg/l	Turbidity TU Fluorometer x10	Phytoplankton[1] Organisms per ml/csu per ml Blue Green Algae	Green Algae	Flagellates	Diatoms	Total mg/l CSU/ml	Major Genus Genus Name csu per ml.
South Arm near Dam E6R70981367 (AR-3)															
10/31/74 1250	—	—	1&19c	 391	160 176	0.01	0.00 0.3	0.04 0.04	7	—	—	—	—	—	—
South Arm near Marina E6R70961362 (AR-3A)															
4/9/75 1200	—	—	0-5.5c 38	 350	148 162	—	—	—	1	160 10	840 7	2800 250	180 58	2.6 320	Crypotmonas 130
 1040	8.2 11.8	9.5 89	10	365 350	146 156	0.08	0.01 0.4	0.01 0.02	2	20 1	300 7	290 18	360 130	1.3 160	Synedra 73
 1125	7.9 11.0	8.2	20	355	151 165	0.16	0.02 0.3	0.02 0.02	0	20[2] 12[2]	240 3	40 1	100 18	0.2 23	Melosira 11
South Arm near Bridge E6R70921353 (AR-3B)															
5/7/75 0835	—	—	0-7.3c 34	 351	147 162	—	—	—	—	290 18	160 4	2100 96	78 10	1.0 130	Flagellate 47

Surface elevation (ft.): 10/31/74 = 603.2; 4/9/75 = 624.8; 5/7/75 = 625.1
Secchi Disk (m.): 4/9/75 - 1.3m

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[1] Cubic standard units per millilitre (csu/ml) x 0.008 = milligrams per litre (mg/l)

[2] Yellow-green algae

WATER QUALITY DATA SUMMARY

Anderson Reservoir

Station Name & No.			Depth	E.C.	Total Hardness	Nitrogen (N)		PO₄(P)	Turbidity TU	Phytoplankton[1] Organisms per ml/csu per ml				Total	Major Genus
Date Time PST	pH Temp. °C	D.O. mg/l %Sat.	Sample Bottom m.	Field Lab µmho	HCO3 mg/l	NO3 mg/l	NH3 Organ. mg/l	Ortho Total mg/l	Fluorometer x10	Blue Green Algae	Green Algae	Flagellates	Diatoms	mg/l CSU/ml	Genus Name csu per ml.
South Arm near Bridge (Continued) (AR-3B)															
5/29/75 1310	—	—	0-8.3c	— 360	153 168	—	—	—	—	160[2] 18[2]	670 44	570 18	140 9	0.7 89	Closterium 30
6/30/75 1415	—	—	0-9.3c	— 371	157 173	—	—	—	—	—	190 69	690 26	84 4	0.8 99	Closterium 63
9/17/75 1115	—	—	0-11c	— 386	166 179	—	—	—	—	89[2] 5[2]	550 6	540 220	170 6	1.9 240	Glenodinium 140
South of Bridge E6R70901347 (AR-4)															
4/9/75 0835	—	—	0-4.5c	—	—	—	—	—	—	1100 100	300 7	1500 120	340 100	2.6 330	Aphanizomenon 100

Surface elevation (ft.): 4/9/75 = 624.8; 5/29/75 = 622.9; 6/30/75 = 618.7; 9/17/75 = 608.2

Secchi Disk (m.): (AR-3B) 6/30/75 = 1.6m; 9/17/75 = 2.25m

(AR-4) 4/9/75 = 1.1m

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[1] **Cubic standard units per millilitre (csu/ml) x 0.008 = milligrams per litre (mg/l)**

[2] Yellow-green algae

WATER QUALITY DATA SUMMARY

Coyote Reservoir

Station Name & No.			Depth	E.C.	Total Hardness	Nitrogen (N)		PO_4 (P)	Turbidity TU	Phytoplankton[1/]					
		D.O.								Organisms per ml/csu per ml				Total	Major Genus
Date Time PST	pH Temp. °C	mg/l %Sat.	Sample Bottom m.	Field Lab µmho	HCO_3 mg/l	NO_3 mg/l	NH_3 Organ. mg/l	Ortho Total mg/l	Fluorometer x10	Blue Green Algae	Green Algae	Flagellates	Diatoms	mg/l CSU/ml	Genus Name csu per ml.
At Boat Ramp Pier E6R70491318 (CR-1)															
4/29/75 1310	—	—	0-0.5	—	—	—	—	—	—	18400 2500	200 150	390 12	590 250	23.2 2900	Aphanizomenon 2500
Near Boat Ramp E6R70601324 (CR-2)															
7/3/75 1015	—	—	0-10.3c 17.2	316	127 140	—	—	—	—	270 20	650 360	84 110	42 5	4.0 500	Closterium 346
0920	7.1 12.9	0.6 6	16.3	300 298	128 136	—	—	—	—	—	—	—	—	—	—

Secchi Disk (m.): 7/3/75 = 2.9m

1/ Cubic standard units per millilitre (csu/ml) x 0.008 = milligrams per litre (mg/l)

APPENDIX H

FIELD DETERMINATIONS

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71021373 (AR-1) Date 10-30-74

Secchi Disc 2.1 m.@ 1155 PST Surface Elevation 603.2 ft. Bottom Depth 47.5 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.)	
		Kemm. Samp.	Thermistor		Comparator	ECL500	Winkler		ECL500		Reading	Range
PST	m.			umho			DO mg/l	% Sat.	DO mg/l	% Sat.		
0916	.2	17.8	17.8									
0920	1.5		18.0									
	3		18.0									
	6.1		18.0									
	9.1		18.0									
0925	12.2		18.0									
	15.2		18.0									
0926	18.3		17.7									
	19.0		16.1									
0929	19.8		15.6									
0930	20.6		15.3									
	21.3		14.8									
0931	22.1		14.6									
	22.9		14.0									
	24.4		13.5									
	25.9		13.2									
0934	27.4		13.0									
	30.5		12.7									
0941	38.1		12.4									
	45.7		12.2									
0946	47.5		12.2									
1030	0.3	17.9		375	7.9		8.0	85				
	17	17.8		375	7.8		7.4	79				
1120	18.3	17.4		375	7.6		5.1	54				
1130	19	17.0		360	7.2		2.2	23				
1205	20	16.6		360	7.2		1.0	10				
1311	21	15.9		355	7.1		0.0	0				
1108	36	12.3		350	7.2		0.0	0				
1148	47	12.2		380	7.1		0.0	0				

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71021373 (AR-1) Date 10-31-74

Secchi Disc 2.0 m.@ 1220 PST Surface Elevation 603.2 ft. Bottom Depth 48.9 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59320)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	umho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0955	1	17.7			7.9		7.5	80			17	10
	2										18	
	3										17	
	4										16	
	6										16.5	
1015	8	17.8			8.0		7.4	79			14	
	10										14.5	
1030	17	17.7			8.0		7.3	78			12.5	
1050	18	17.6					6.7	71			11	
1100	20	16.1			7.2		0.3	3			8.5	
1110	25	13.6									9.5	
1115	36	12.3									9.5	
1120	47	12.2									10	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 4-8-75

Secchi Disc ____ m.@ ____ PST Surface Elevation 624.8 ft. Bottom Depth 55 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59320)	
		Kemm. Samp.	Therm-istor		Compar-ator	ECL500	Winkler		ECL500		Read-ing	Range
PST	m.			µmho			DO mg/l	% Sat.	DO mg/l	% Sat.		
0840	0.3	12.0		345	8.3		10.1	95				
0904	0.3		11.7	330		8.4						
0922	5		11.9	330		8.3						
	10		11.8			8.3						
	15		11.4	340		8.1						
	20		11.1	342		8.1						
	25		10.9	348		8.0						
	30		10.9	348		8.0						
	35		10.8	350		8.0						
	40		10.8	351		8.0						
	45		10.7	352		7.9						
	50		10.6	354		7.9						
	53		10.6	355		7.9						
	55		10.6	406		7.3						
1658	2	12.2		345	8.5		11.5	109			81.5	10
1550	3	12.0		345	8.3		10.6	100			73.0	
1300	15	11.5		360	8.0		8.9	83			20.0	
1248	20	11.0		360	8.1		8.4	77			18.0	
1145	40	10.7		365	7.9		7.9	72			16.5	
1055	53	10.6		365	7.8		7.3	67			16.5	
1030	53	10.6		365	7.9		7.8	71				

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 4-9-75

Secchi Disc 1.5 m.@ 1250 PST Surface Elevation 624.8 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59320)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0730	10	11.7		350	8.2		9.9	93				
1325	0-0.5	14.0			8.3						39	10
	1-1.5	12.9			8.3						59	
	2-2.5	12.2			8.3		11.0	104			87.5	
	3-3.5	12.0			8.3						60.5	
	4-4.5	11.9			8.3						49.5	
	5-5.5	11.9			8.3		10.4	98			46.5	
1250	10	11.8			8.2						31	
1310	20	11.0			7.9						16	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 5-6-75

Secchi Disc 1.7 m.@ 1135PST Surface Elevation 625.1ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0820	0.3	14.8		350	8.3		9.4	94			29	10
0935	0.3	15.2	14.7			8.4						
	1.5	15.2									35.5	
	2.3	15.1	14.5			8.4					36.0	
	3.3	14.9									38.0	
	4.3	14.9	14.4	355	8.3	8.4	9.6	96			30.5	
	5.3	14.9									27.0	
0945	6.3	14.9	14.3			8.4					26.5	
1203	7.3	14.9									22.0	
	8.3		14.2			8.4	9.6	95				
1020	10.3	14.2	13.9	355	8.0		8.7	86			19.0	
	11.3		13.5									
1405	12.3	13.6	13.1	355	8.0		8.4	82			17.0	
	13.3		12.5									
1455	14.3	12.4	12.0				7.4	70				
	15.3		11.6									
1440	16.3	11.8	11.3	360	7.9		7.0	66			14.5	
	17.3		11.2									
1415	20.3	11.4	10.9	360	7.9		6.8	63			14.0	
1545	25.3	11.2	10.6		7.7		7.2	67				
1500	30.3	11.1	10.5		7.7		7.4	68			13.5	
1520	40.3	11.0	10.4	360	7.8						13.0	
	46.3		10.3				7.2	66				
1530	50.3	10.8		360	7.7		7.1	65				

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 5-7-75

Secchi Disc ____ m.@ ____ PST Surface Elevation 625.1 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1255	0.3	17.6		345	8.3		10.2	108			37.0	10
1305	1.3	16.3			8.3							
1320	2.3	15.9			8.4		10.6	108			55.0	
1350	3.3	15.5			8.3		9.8	99			36.5	
1310	4.3	15.2			8.3		9.9	100				
1325	5.3	14.7			8.0		9.3	93				
1330	6.3	14.6			8.0		9.2	92				
1340	7.3	14.3		355	8.0		9.2	91				
1405	10.3	13.8			8.1		9.5	93			19.0	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 5-28-75

Secchi Disc ____ m.@ ____ PST Surface Elevation 623.1 ft. Bottom Depth 53 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0810	0.3	19.6										
0830	0.3	19.8	20.0	355	8.3		9.1	101				
	2.3		19.4									
	3.3		19.1									
	5.3		18.8									
	6.3		18.5									
	7.3		18.1									
0945	7.8		17.6									
	8.3		16.9									
	9.3		15.8									
0905	10.3	15.3	15.3	370	7.6		6.6	67				
	12.3		15.1									
	13.3		14.1									
	14.3		13.3									
1000	16.3	13.1	12.7	365	7.7		5.9	57				
	18.3		12.2									
	19.3		11.9									
1018	20.3	11.6	11.6	365	7.5		6.0	56				
	25.3		11.2									
	30.3		11.0									
	40.3		10.9									
	50.3		10.9									
0940	53		10.8									

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 5-29-75

Secchi Disc ____ m.@ ____ PST Surface Elevation 622.9ft. Bottom Depth 55 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Compar-ator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Therm-istor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Read-ing	Range
0755	10.3	15.8		365	7.9		6.8	69			13.5	10
	16.3	12.8									12.0	
	25.3	11.5		365	7.5		5.9	50			12.0	
	30.3	11.2		360	7.6		6.2	57			12.0	
	46.3	11.3		365	7.6		6.1	57			12.5	
0930	50.3	11.0		365	7.5		6.2	57			12.5	
1005	0.3	20.8			8.3		8.8	99			30	
	1.3	20.3									32.5	
	2.3	20.4			8.3		8.9	100			32.5	
	3.3	19.8									32.5	
	4.3	19.5			8.3		8.7	96			29.5	
	5.3	19.4									28.5	
	6.3	19.3			8.2		8.6	94			28.5	
	7.3	18.3									22.0	
0922	8.3	16.7		365	8.0		7.1	74			15.0	
	0-8.3c										27.5	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71021373 (AR-1) Date 7-1-75

Secchi Disc 2.2 m.@ 1145 PST Surface Elevation 618.62ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0850	0.3	20.5		370	8.1		7.8	88				
0835	0.3		20.6	370					7.8	88		
	1.0		20.6						7.8	88		
	2.0		20.4						7.8	87		
	3.3		20.3						7.7	86		
	5.3		20.3						7.7	86		
	7.3		20.3						7.7	86		
	8.3		20.1						7.6	85		
	9.3		19.5	373					6.7	74		
0850	10.3		18.4						5.3	57		
	11.3		16.4						4.1	42		
	12.3		15.7						4.2	43		
	13.3		14.7						4.2	42		
	14.3		14.3						4.6	46		
	15.3		13.7						4.6	45		
	17.3		13.0						4.5	43		
	19.3		12.4						4.6	44		
	21.3		11.9						5.0	47		
0855	23.3		11.5	368					5.2	48		
	25.3		11.4						5.1	47		
	27.3		11.4						5.2	48		
	29.3		11.2						5.6	52		
	31.3		11.1	368					5.5	51		
	33.3		11.0						5.7	52		
	36.3		11.0						5.6	52		
	40.3		10.9						5.6	52		
	45.3		10.9						5.5	50		
0915	50.3		10.9	368					5.5	50		
1030	0.3	21.0							7.9	90		
	1.3	21.0									30.5	10
	2.3	21.0									29.0	

Continued on the next page

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71021373 (AR-1) Date 7-1-75 (Cont)

Secchi Disc 2.2 m.@ 1145 PST Surface Elevation 618.62 ft. Bottom Depth _____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1040	3.3	20.8									29.5	10
1015	4.3	20.6			8.0		7.7	87			26.0	
	5.3	20.5									23.5	
	6.3	20.5									22.0	
	7.3	20.5									21.0	
0950	8.3	20.3			7.9		7.5	84			16.0	
0935	9.3	19.8		370	8.0		6.8	75			15.5	
1110	11.3	16.2			7.5		3.8	39			14.5	
1130	45.3	11.4			7.5		4.9	45			11.0	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 9-16-75

Secchi Disc 2.8 m.@ 1300PST Surface Elevation 608.2ft. Bottom Depth 49 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.)	
							Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho	Comparator	ECL500	DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0800	0.3	21.3		385	8.3		7.3	83				
0810	0.3		20.8	385		8.3			7.3	82		
0825	1.3		21.0	390		8.3			7.2	82		
0829	2.3		21.0	392		8.2			7.1	81		
0830	3.3		21.0	392		8.2			7.1	81		
0831	4.3		21.0	392		8.2			7.1	81		
	5.3		21.0	392		8.2			7.0	79		
0832	6.3		21.0	392		8.1			7.0	79		
0833	7.3		20.9	392		8.1			7.0	79		
0834	8.3		20.9	392		8.1			7.0	79		
0835	9.3		20.9	393		8.0			6.6	75		
0907	9.7	21.2		395	8.3		7.3	84				
0836	9.8		20.9	394		8.0			6.4	72		
0837	10.3		20.8	396		8.0			6.3	71		
0843	10.7	20.8		395	7.9		4.5	51				
0843	10.8		20.8	397		7.9			6.1	69		
0845	11.3		20.4	396		7.5			3.5	39		
0930	11.7	20.0		390	7.7		2.1	23				
0846	11.8		20.1	393		7.3			2.4	27		
0848	12.3		19.4	392		7.3			1.8	20		
0850	12.8		19.1	393		7.2			1.3	14		
0852	13.3		18.5	390		7.1			0.9	10		
0956	13.6	17.1		375	7.3		0.1	1				
0854	13.8		18.0	389		7.1			0.7	7		
0855	14.3		16.6	383		7.0			0.3	3		
0856	14.8		16.2	382		7.0			0.3	3		
0858	15.3		15.4	380		7.0			0.4	4		
0859	16.3		14.6	378		7.0			0.5	5		
0901	17.3		14.0	378		7.0			0.9	9		
0902	18.3		13.4	377		7.1			1.0	10		
1005	18.5	14.0		375	7.3		1.3	13				

(Continued on following page)

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 9-16-75 (Cont.)

Secchi Disc 2.8 m.@ 1300 PST Surface Elevation 608.2 ft. Bottom Depth 49 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.)	
		Kemm. Samp.	Thermistor		Comparator	ECL500	Winkler		ECL500		Reading	Range
PST	m.			µmho			DO mg/l	% Sat.	DO mg/l	% Sat.		
0905	19.3		13.2	378		7.1			1.2	12		
0909	20.3		12.8	378		7.1			1.3	13		
0910	25.3		11.8	375		7.2			2.2	21		
1012	25.3	12.5		375	7.3		2.5	24				
0911	30.3		11.4	376		7.2			2.1	19		
0913	35.3		11.2	376		7.2			2.2	20		
1022	39.9	11.9		365	7.3		2.2	21				
0935	40.3		11.3	378		7.1			2.1	19		
0938	47.3		11.1	388		7.1			1.1	10		
1050	47.6	11.8		375	7.2		0.9	8				

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Center No. E6R71020373 (AR-1) Date 9-17-75

Secchi Disc 3.1 m.@ 1234 PST Surface Elevation 608.2 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1226	0.3	22.4									17	10
1245	0.3	22.5		385	8.3		7.7	90				
1258	0.3		22.1	385		8.3			7.7	89		
	1.3	22.1									17	
1259	1.3		21.7	375		8.3			7.7	88		
1236	2.3	21.8									18	
1300	2.3		21.5	375		8.3			8.0	92		
	3.2	21.8									16	
1303	3.3		21.5	375		8.3			8.0	92		
1239	4.2	21.8									16	
1304	4.3		21.4	373		8.3			8.0	91		
1240	5.2	21.7									16	
1305	5.3		21.4	374		8.2			8.0	91		
1242	6.1	21.6									15.5	
1306	6.3		21.3	373		8.3			8.0	91		
1300	7.1	21.5									17.5	
1308	7.3		21.3	372		8.2			7.8	89		
1302	8.1	21.3									16	
1312	8.3		20.9	372		8.1				86		
1305	9.1	21.2									15	
1313	9.3		20.8	373		8.1			7.4	84		
1309	10.0	20.9									13	
1315	10.3		20.6	375		7.8			5.3	60		
1312	11.0	20.2									11.5	
1318	11.3		20.0	370		7.4			2.7	30		
1321	12.3		19.3	365		7.3			1.3	14		
1323	13.3		18.0	360		7.1			0.2	2		
1324	14.3		16.8	353		7.1			0.0	0		
1326	15.3		15.9	350		7.1			0.2	2		

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 10/30/74

Secchi Disc 1.3 m.@1415 PST Surface Elevation 603.2ft. Bottom Depth 21 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.)	
							Winkler		ECL500			
PST	m.	Kemm. Samp.	Therm-istor	µmho	Compar-ator	ECL500	DO mg/l	% Sat.	DO mg/l	% Sat.	Read-ing	Range
1420	0.2		17.8									
1445	0.5		17.8	380	8.2		8.0	85				
	1.5		17.8									
	7.6		17.8									
	15.2		17.5									
	16.8		17.4									
	17		17.5	380	7.9		7.8	83				
	18.3		17.2									
	19.8		17.2									
1505	20		17.2	380	8.1		7.8	82				
	21.3		17.2									

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 10/31/74

Secchi Disc 1.2 m.@ 0930 PST Surface Elevation 603.2 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59320)	
		Kemm. Samp.	Thermistor		Comparator	ECL500	Winkler		ECL500		Reading	Range
PST	m.			µmho			DO mg/l	% Sat.	DO mg/l	% Sat.		
0900	1	17.6			7.8		7.7	82			24	10
	2										26.5	
	3										26	
	4										26	
	5										26.5	
	6										21.5	
	10										20	
0930	18										24	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 4/8/75

Secchi Disc 1.1 m.@1450 PST Surface Elevation 624.8 ft. Bottom Depth 29 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59320)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1511	2	12.2		350	8.4		11.7	111			120	10
1502	4	11.9		355	8.3		10.5	99			63.0	
1440	15	11.5		365	8.0		8.6	80			23.5	
1420	27	11.0		390	7.9		8.2	75			27.0	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2)　Date 4/9/75

Secchi Disc 1.2 m.@ 1510 PST　Surface Elevation 624.8 ft.　Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59320)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1540	0.3	13.3									82.5	10
1545	1.3	12.7									74.5	
1550	2.3	12.3									74.5	
1553	3.3	11.9									62.5	
1555	4.3	11.9									63.5	
1600	5.3	11.9									39.5	
	0-5.3c										73	
1520	10	11.7									24	
1535	20	11.0									18.5	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 5/7/75

Secchi Disc ____ m.@ ____ PST Surface Elevation 625.1 ft. Bottom Depth 28 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Compar-ator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Therm-istor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Read-ing	Range
1040	0.3	16.4	15.9	350	8.4		10.3	106			41.5	10
1155	1.3	16.5	15.9		8.4						52.0	
1200	2.3	15.9	15.5		8.3		10.2	104			53.5	
1120	3.3	15.3	15.2	360	8.3		10.0	101			39.5	
1230	4.3	15.2	14.9								34.0	
1140	5.3	14.9	14.6	355	8.2		9.8	98			32.5	
1115	6.3	14.6	14.4	355	8.1		9.3	93			29.5	
1135	7.3	14.4	14.1	355	8.0		9.3	92			24.5	
	9.3		13.7									
1215	12.3	13.4	13.2	365	7.7		8.3	81				
	14.3		12.7									
	15.3		12.5									
	16.3		11.9									
	17.3		11.4									
	18.3		11.0									
	19.3		10.8									
1220	20.3	11.3	10.7	365	7.7		6.9	64				
	25.3		10.6									
	27.3		10.5									
1055	27.3	11.1		370	7.7		6.6	61			15.0	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 5/28/75

Secchi Disc____m.@____PST Surface Elevation 623.1 ft. Bottom Depth 27 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1300	0.3	19.0	19.0	365	8.2		8.6	94				
	3.3		18.9									
	4.3		18.6									
	5.3		18.0									
	6.3		17.0									
	7.3		16.9									
	8.3		16.4									
	10.3		15.9									
	11.3		15.0									
	12.3		14.7									
	13.3		13.8									
	14.3		12.7									
	15.3		12.3									
	17.3		11.8									
	20.3		11.7									
	25.3		11.6									
1326	27.0		11.6									
1515	0.3	19.2			8.0						35.0	10
1510	1.3	19.1			8.2		8.9	97			35.0	
1505	2.3										32.0	
1500	3.3				8.2		8.4	91			31.5	
1450	4.3	18.4			8.1						32.5	
	5.3	17.8			8.2						27.0	
1430	6.3	16.9			8.0		7.1	74			17.0	
	7.3	11.4									15.5	
	8.3	16.0			8.0		6.7	69			14.5	
	0-8.3										26.5	
	12.3	13.7		365	7.6		5.9	58			14.0	
	20.3	11.7		365	7.6		5.7	53			13.0	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 7/1/75

Secchi Disc 1.4 m.@ 1310 PST Surface Elevation 618.6 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1325	0.3	20.4		375	8.0		7.6	85				
1340	0.3		20.3	375					7.6	85		
	1.3		20.3						7.6	85		
	2.3		20.2						7.6	85		
	3.3		20.1						7.6	85		
	4.3		19.8						7.4	82		
1350	5.3		19.7						7.3	81		
	7.3		19.6						7.1	78		
	8.3		19.2						6.4	70		
	9.3		18.5						5.5	59		
1355	10.3		17.5	377					4.6	49		
	11.3		17.3						4.2	44		
	12.3		15.3						3.8	38		
	13.3		14.5						3.8	38		
	14.3		14.0						4.0	39		
	15.3		13.4						4.0	39		
	16.3		13.0						4.0	38		
	17.3		12.5						4.0	38		
	18.3		12.1						4.3	41		
	19.3		11.9						4.4	41		
	20.3		11.6						4.5	42		
	21.3		11.5						4.6	43		
	22.3		11.5						4.6	43		
1415	25.3		11.5						4.6	43		
1510	0.3	20.4			7.9						23.5	10
1505	1.3	20.5									27.0	
1505	2.3	20.4									27.5	
1500	3.3	20.3			7.8						26.0	
1500	4.3	20.0									22.0	
1455	5.3	20.0			7.8						19.5	

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FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 7/1/75 (Cont)

Secchi Disc ____ m.@ ____ PST Surface Elevation 618.6 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1450	6.3	19.9									18.5	10
1440	7.3	19.8			7.7		7.1	79			17.0	
1435	8.3	19.5			7.9		6.6	73			17.0	
1430	9.3	18.4		365	7.6		4.6	50			16.5	
	0-9.3c										23.5	
1515	10.3	17.5			7.5		4.0	42			16.5	
1525	19.3	12.2		365	7.3		4.0	38			14.0	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 9-17-75

Secchi Disc ____ m.@ ____ PST Surface Elevation 608.2 ft. Bottom Depth 23 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0804	0.3	21.2		385	8.3		7.3	83				
0812	0.3		20.9	385		8.2			7.3	83		
0825	1.3		20.8	385		8.2			7.3	82		
	2.3		20.8	385		8.2			7.2	81		
	3.3		20.8	385		8.2			7.3	82		
	4.3		20.8	385		8.2			7.2	81		
0830	5.3		20.8	386		8.2			7.1	80		
0835	5.8	21.1		385	8.3		7.0	80				
	6.3		20.8	385		8.1			6.7	76		
	7.3		20.8	386		8.1			6.6	75		
	8.3		20.8	387		7.9			6.1	69		
0836	9.3		20.7	387		7.9			5.9	67		
	10.3		20.6	388		7.9			5.9	66		
0839	11.3		20.5	389		7.9			6.2	70		
0850	11.7	20.4		395	7.8		4.4	49				
0842	11.8		20.4	389		7.9			6.0	67		
0840	12.3		20.2	390		7.6			4.3	48		
0845	12.8		19.7	391		7.5			3.7	41		
0910	13.1	19.1		390	7.2		1.0	11				
0846	13.3		19.1	386		7.2			1.6	17		
	13.8		18.5	382		7.2			0.8	9		
0850	14.3		17.2	378		7.0			0.1	1		
	14.8		16.3									
	15.3		15.8	371		7.0			0.1	1		

(Continued on following page)

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station North Arm No. E6R71131385 (AR-2) Date 9-17-75 (Continued)

Secchi Disc ____m.@ ____PST Surface Elevation 608.2 ft. Bottom Depth 23 m.

Time PST	Depth m.	Temperature °C		EC µmho	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
		Kemm. Samp.	Thermistor		Comparator	ECL500	Winkler		ECL500			
							DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
	16.3		14.9	371		7.0			0.1	1		
0855	17.3		14.2	369		7.0			0.1	1		
	18.3		13.9	371		7.0			0.0	0		
0901	19.3		13.4	372		6.9			0.0	0		
0903	20.3		13.1	372		7.0			0.0	0		
0744	21.0	13.6		375	7.1		0.1	1				
0904	21.3		12.8	372		7.0			0.0	0		
0905	21.8		12.6	372		7.0			0.0	0		
0959	0.3	21.5									18.0	10
	1.3	21.3									21.0	
0954	2.2	21.2									18.5	
	3.2	21.2									18.0	
	4.2	21.2									17.0	
0949	5.2	21.2									17.0	
	6.1	21.2									16.5	
0943	7.1	21.2									16.5	
	8.1	21.1									16.0	
0938	9.1	21.0									14.5	
	10.0	21.0									14.0	
0930	11.0	20.8									16.0	
1001	20.3	13.5		375	7.1						14.5	
	0-11c										17.0	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South Arm near Dam No. E6R70981367 (AR-3) Date 10/31/74

Secchi Disc 2.0 m.@ 1240 PST Surface Elevation 603.2 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59320)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1245	1	17.8		390	8.1		7.6	81			23.0	10
1250	19	16.6		360	7.2		1.9	20			9.5	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South Arm near Marina No. E6R70961362 (AR-3A) Date 4/9/75

Secchi Disc 1.6 m.@ 1010 PST Surface Elevation 624.8 ft. Bottom Depth 38 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59320)	
		Kemm. Samp.	Thermistor		Comparator	ECL500	Winkler		ECL500		Reading	Range
PST	m.			µmho			DO mg/l	% Sat.	DO mg/l	% Sat.		
1025	0.3	12.4					10.3	98				
1148	0.3				8.3						46.0	10
1148	1.5				8.3						58.0	
	2.5				8.3		10.3	98			77.0	
	3.5				8.3						45.0	
	4.5				8.2						37.0	
1210	5.5	11.9			8.2		10.0	94			36.0	
	6											
	7											
	8											
	9											
1040	10	11.8		365	8.2		9.5	89			24.5	
	11											
	12											
	13											
	14											
	15											
1125	20	11.0		355	7.9		8.2	75			17.0	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station **South Arm near Bridge No. E6R70961362** (AR-3B) Date 5/7/75

Secchi Disc_____m.@_____PST Surface Elevation 625.1 ft. Bottom Depth_____m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0800	0.3	15.4	14.9	340	8.3		9.7	98			37.5	10
0830	1.3	15.3	15.0		8.2						36.5	
0855	2.3	15.2	14.9		8.2		9.4	95			36.0	
0840	3.3	15.1	14.8	350	8.3		9.2	93			32.0	
0900	4.3		14.5		8.0						23.0	
0910	5.3	14.5	14.3								22.0	
0844	6.3	14.3	14.1	355	8.0		9.0	89			21.5	
0915	7.3	14.2	13.9	355	8.2		8.5	84			20.0	
	8.3		13.8									
	9.3		13.6									
	10.3		13.5									
	11.3		13.4									
0940	12.3	13.6	13.3	355	8.0		8.1	79			16.5	
	13.3		13.1									
	14.3		12.9									
	15.3		12.4									
1000	16.3	12.2	12.1	350	7.7		6.8	64				
	17.3		11.8									
	18.3		11.7									
0945	20.3	11.5	11.3	350	7.7		7.1	66				
	25.3		10.9									
	30.3		10.7									
	33.3		10.5									
0820	33.3	11.0		360	7.5		6.5	60			13.5	

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South Arm near Bridge No. E6R70961362 (AR-3B) Date 5/29/75

Secchi Disc ____ m.@ ____ PST Surface Elevation 622.9 ft. Bottom Depth 32.3 m.

Time * PST	Depth m.	Temperature °C		EC µmho	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
		Kemm. Samp.	Therm-istor		Compar-ator	ECL500	Winkler DO mg/l	Winkler % Sat.	ECL500 DO mg/l	ECL500 % Sat.	Read-ing	Range
1335	0.3	22.2	22.3		8.4		8.9	103			35.5	10
	1.3	21.9	22.4		8.3						38.0	
	2.3	21.9	22.0		8.3		8.9	103			37.5	
	3.3	21.7	21.8		8.3						39.5	
	4.3	21.0		355	8.3		8.9	101			39.5	
	5.3	20.2	21.4		8.3						32.5	
	6.3	19.6	21.0		8.2		8.8	97			30.0	
	7.3	17.8	20.0		8.1						18.5	
1245	8.3	16.7	19.1		7.9		6.6	69			15.5	
	8.8		18.2									
	9.3		17.1									
	10.3		16.3									
1240	12.3	15.2	15.7		7.9		6.3	64			13.5	
	13.3		15.5									
	15.3		15.0									
	16.3	13.8	14.2	360	7.8		6.0	59			13.5	
	18.3		13.8									
	20.3	12.7	13.2		7.6		5.7	54			13.5	
	23.3		12.4									
	25.3		11.8									
1200	30.3	11.3	11.5	360	7.4		5.2	48			13.5	
	32.3		11.4									
	0-8.3c										32.5	

*Time of Kemmerer Sample: Thermistor was used from 1345 to 1406

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South Arm near Bridge No. E6R70961362 (AR-3B) Date 6/30/75

Secchi Disc ____ m.@ ____ PST Surface Elevation 618.7 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1345	0.3	23.0		365	8.3		8.5	100			29.5	10
	1.3	23.0			8.2						29.0	
	2.3	22.9			8.2		8.4	98			31.5	
	3.3	22.8			8.2						28.5	
	4.3	22.5		365	8.2		8.3	97			26.0	
	5.3	21.8			8.1						23.0	
	6.3	21.3			8.1		7.6	87			19.0	
1425	7.3	21.0			7.9						19.5	
	8.3	20.7			7.7		6.7	76			17.5	
1440	9.3	19.7		375	7.9		5.8	64			17.0	
1445	25.3	12.1			7.3		4.3	41				

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South Arm near Bridge No. E6R70961362 (AR3-B) Date 7/2/75

Secchi Disc ____ m.@ ____ PST Surface Elevation 618.6 ft. Bottom Depth ____ m.

Time PST	Depth m.	Temperature °C		EC µmho	pH		Dissolved Oxygen				Fluorometer (No.)	
		Kemm. Samp.	Thermistor		Comparator	ECL500	Winkler		ECL500		Reading	Range
							DO mg/l	% Sat.	DO mg/l	% Sat.		
1300	0.3	23.6		375	8.2		8.2	97				
1320	0.3		23.3	375		7.9			8.2	95		
	1.3		23.1			7.8			7.8	92		
	2.3		21.3			7.7			7.6	87		
	3.3		21.1			7.7			7.6	86		
	4.3		21.0			7.7			7.7	87		
	5.3		20.7			7.7			7.6	86		
	6.3		20.5			7.7			7.4	83		
	7.3		20.1			7.5			6.7	75		
1330	8.3		19.4			7.3			6.2	68		
	9.3		17.4			6.9			4.2	44		
	10.3		16.1			6.9			4.2	43		
	11.3		15.7			6.9			4.2	43		
	12.3		15.4			6.8			4.2	43		
	13.3		14.6			6.8			4.4	44		
	14.3		14.3			6.9			4.6	46		
	15.3		13.9			6.9			4.6	45		
	17.3		13.5			6.9			4.6	45		
1340	20.3		12.9			6.9			4.4	42		
	25.3		11.5			6.9			4.5	42		

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South Arm near Bridge No.E6R70961362 (AR-3B) Date 9/16/75

Secchi Disc ____ m.@ ____ PST Surface Elevation 608.2 ft. Bottom Depth ____ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1344	0.3	23.0		380	8.4		8.0	94				
1350	0.3		22.6	380		8.3			8.0	93		
1358	1.3		22.6	380		8.3			8.1	95		
1400	2.3		22.5	380		8.3			8.2	95		
1401	3.3		22.4	380		8.3			8.2	95		
1402	4.3		21.9	380		8.2			7.7	89		
1403	5.3		20.8	380		8.2			7.8	88		
1404	6.3		21.6	380		8.1			7.6	87		
1412	6.3	21.9		380	8.2		7.1	82				
1404	7.3		21.4	380		8.0			6.6	75		
1405	8.3		21.2	378		7.7			5.1	58		
1440	8.3	21.0		380	7.6		3.6	41				
1410	9.3		20.6	376		7.5			3.6	41		
1413	10.3		20.5	374		7.4			3.3	37		
1415	11.3		20.1	373		7.3			2.1	23		
1452	11.7	19.6		380	7.5		0.8	9				
1419	11.8		19.4	371		7.2			1.4	15		
1418	12.3		18.9	371		7.1			0.6	7		
1421	12.8		18.4	369		7.1			0.2	2		
1422	13.3		18.1	368		7.1			0.0	0		
1426	13.8		17.1									
1425	14.3		16.6	365		7.1			0.0	0		
1428	14.8		15.8									
1429	15.3		14.8	362		7.0			0.1	1		
1434	16.3		13.9	359		7.0			0.2	2		
1435	17.3		13.4	359		7.1			0.3	3		
1436	18.3		13.0	359		7.1			0.3	3		
1500	18.5	14.5		370	7.2		0.4	4				
1437	19.3		12.6	359		7.1			0.3	3		
1510	19.4	13.9										
1441	20.3		12.2	360		7.0			0.1	1		

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FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South Arm near Bridge No. E6R70961362 (AR-3B) Date 9/16/75 (Continued)

Secchi Disc_____m.@_____PST Surface Elevation 608.2 ft. Bottom Depth_____m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.)	
							Winkler		ECL500			
PST	m.	Kemm. Samp.	Therm-istor	µmho	Compar-ator	ECL500	DO mg/l	% Sat.	DO mg/l	% Sat.	Read-ing	Range
1444	25.3		11.5	364		7.0			0.0	0		
1445	27.3		11.2	368		7.0			0.0	0		

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South Arm near Bridge No. E6R70961362 (AR-3B) Date 9/17/75

Secchi Disc 2.25 m.@ 120 PST Surface Elevation 608.2ft. Bottom Depth ______ m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.59720)	
					Compar-ator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Therm-istor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Read-ing	Range
1056	0.3	23.2		385	8.4		8.0	94			26.0	10
	1.3	22.8									21.0	
	2.3	22.6									20.0	
1102	3.2	22.2									19.0	
	4.2	21.9									15.5	
	5.2	21.7									14.0	
1106	6.1	21.6									12.5	
1112	7.1	21.3									12.0	
1117	8.1	21.3									12.5	
1127	9.1	21.0									11.5	
1130	10.0	20.6									12.0	
1133	11.0	20.3									12.5	
1138	24.3	12.9		385	7.1		0.1	1				
1121	0.3		22.7	385		8.4			8.0	94		
1127	1.3		22.4	382		8.4			8.0	93		
1129	2.3		22.2	382		8.3			7.8	90		
1130	3.3		21.8	383		8.3			7.3	84		
1132	4.3		21.5	382		8.2			7.2	82		
1133	5.3		21.3	382		8.2			6.9	79		
1135	6.3		21.1	380		8.0			6.1	69		
1137	7.3		20.9	381		7.8			4.9	55		
1138	8.3		20.8	380		7.7			4.3	49		
1140	9.3		20.6	378		7.6			3.4	38		
1142	10.3		20.3	376		7.4			2.4	27		
1144	11.3		19.8	374		7.3			1.5	17		
1145	19.3		13.6	360		7.1			0.2	2		
1148	24.3		12.3	363		7.1			0.0	0		
	0-11c										16.0	10

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station South of Bridge No. E6R70901347 (AR-4) Date 4/9/75

Secchi Disc 1.1 m.@ 0810 PST Surface Elevation 624.8 ft. Bottom Depth 15.1 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No.)	
					Comparator	ECL500	Winkler		ECL500			
		Kemm. Samp.	Thermistor				DO	%	DO	%	Reading	
PST	m.			µmho			mg/l	Sat.	mg/l	Sat.		Range
0823	0.3	12.3			8.2							
0829	1.3	12.1		320	8.2		10.1	95				
0840	2.3	12.1			8.3		10.1	95				
0842	3.3	12.2			8.2		9.8	93				
0850	4.3	12.2			8.3		10.0	95				

FIELD DETERMINATIONS--ANDERSON RESERVOIR

Station Coyote Reservoir near Boat Ramp E6R70601324 (CR-2) Date 7/3/75

Secchi Disc ____ m.@ ____ PST Surface Elevation ____ ft. Bottom Depth 17.2 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
0755	0.3	20.4		320	7.9		8.3					
0800	0.3		20.3	320		7.6			8.3			
	1.3		20.3			7.6			8.4			
0805	2.3		20.3			7.6			8.4			
	3.3		20.2			7.6			8.3			
0810	4.3		20.2	322		7.6			8.2			
	5.3		20.1	322		7.5			7.8			
	6.3		20.0			7.4			7.7			
0815	7.3		19.9	323		7.4			7.6			
0820	7.8		19.5	322		7.3			7.1			
0818	8.3		19.2			7.2			6.4			
0825	8.8		18.2	320		6.9			4.8			
0825	9.3		17.7	317		6.7			3.5			
	9.8		16.0	310		6.6			1.7			
0830	10.3		15.2	308		6.5			1.7			
	11.3		13.6	300		6.6			2.0			
0835	12.3		13.1	300		6.5			1.8			
	13.3		12.8	300		6.5			1.8			
0840	14.3		12.6	300		6.5			1.7			
	15.3		12.6	300		6.5			1.6			
0840	16.3		12.5	301		6.5			1.5			
0920	16.3	12.9		300	7.1		0.6					
0845	16.8		12.4	301		6.5			1.5			
0948	0.3	20.9									48.5	10
0950	1.3	20.6									45	
1000	2.3	20.5		320	7.8		8.5				46	
1004	3.3	20.4									47	
1010	4.3	20.3		320	7.8		8.4				45	
1015	5.3	20.1		320	7.7		8.2				49.5	
1023	6.3	19.9		320	7.9		7.7				43.5	
1040	7.3	19.8		315	7.9		7.8				50.5	

(Continued on following page)

FIELD DETERMINATIONS--ANDERSON RESERVOIR

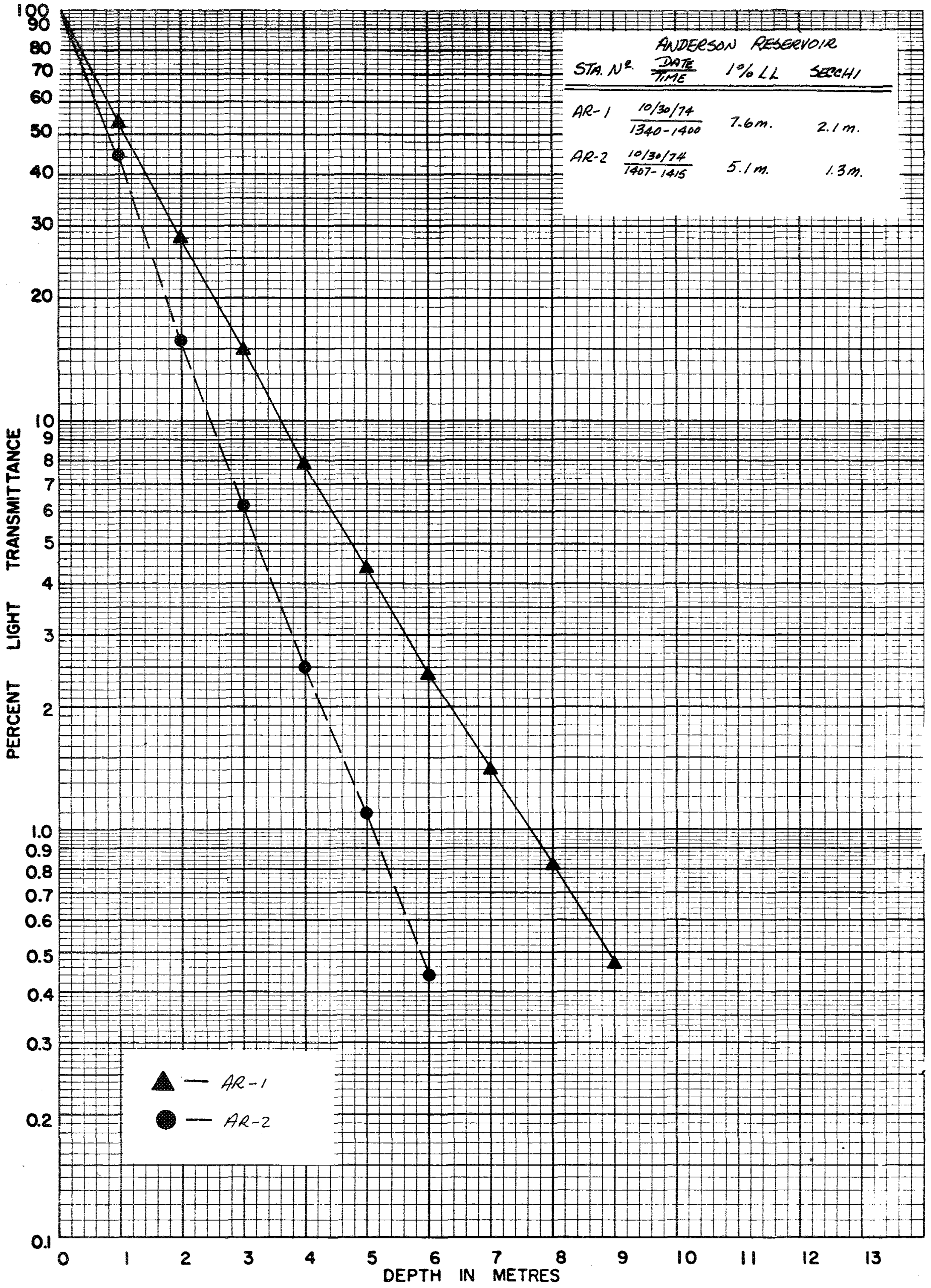
Station Coyote Reservoir near Boat Ramp E6R70601324 (CR-2) Date 7/3/75 (continued)

Secchi Disc____ m.@____ PST Surface Elevation_____ ft. Bottom Depth 17.2 m.

Time	Depth	Temperature °C		EC	pH		Dissolved Oxygen				Fluorometer (No. 59720)	
					Comparator	ECL500	Winkler		ECL500			
PST	m.	Kemm. Samp.	Thermistor	µmho			DO mg/l	% Sat.	DO mg/l	% Sat.	Reading	Range
1054	8.3	19.2		315	7.7		6.6				40	
1105	9.3	16.2		310	7.2		0.6				19.5	
1143	10.3	15.0		305	7.1		0.9				20	
1207	12.3	13.9		300	7.1		0.8					

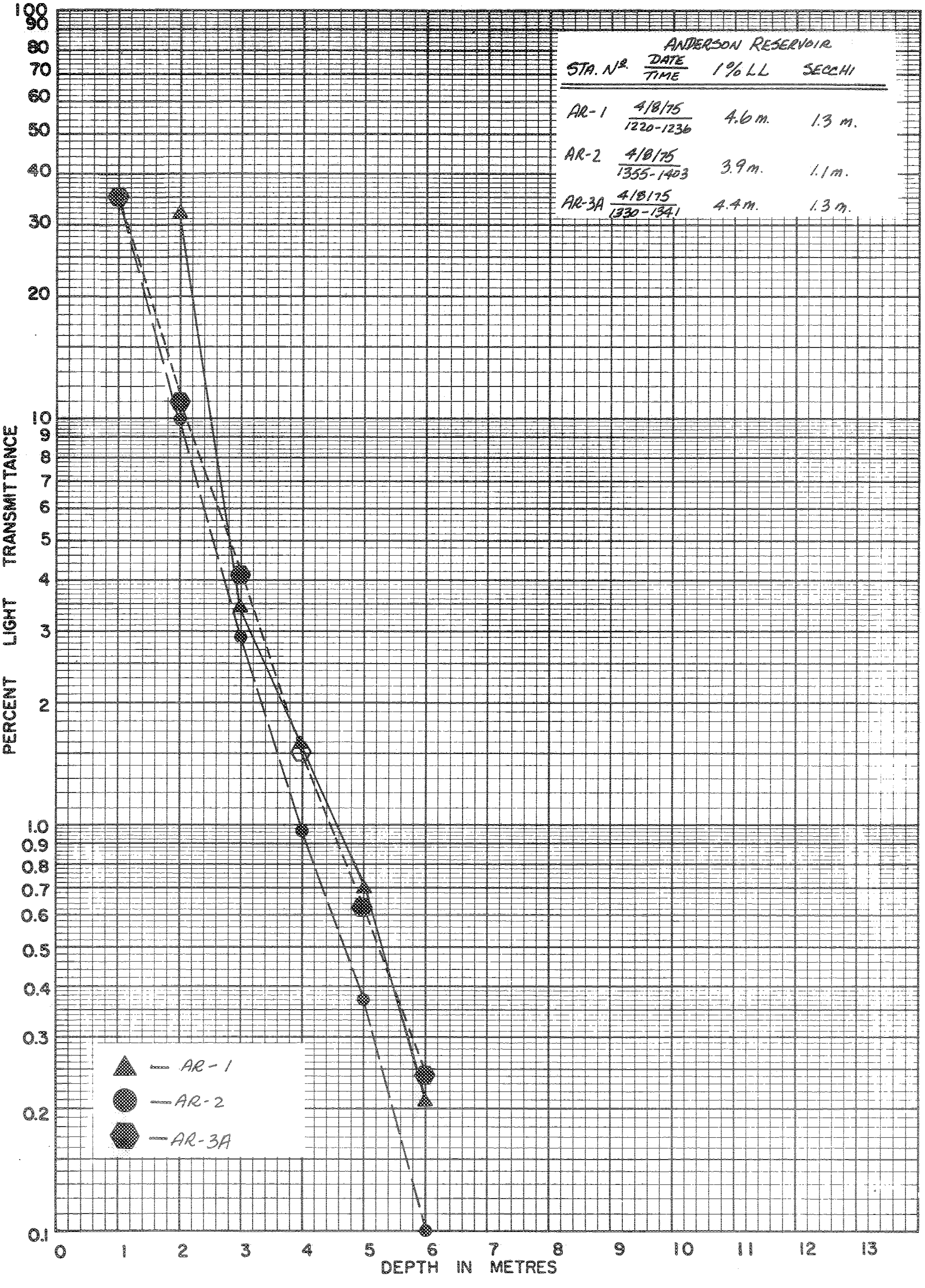
APPENDIX I

PERCENT LIGHT TRANSMITTANCE GRAPHS



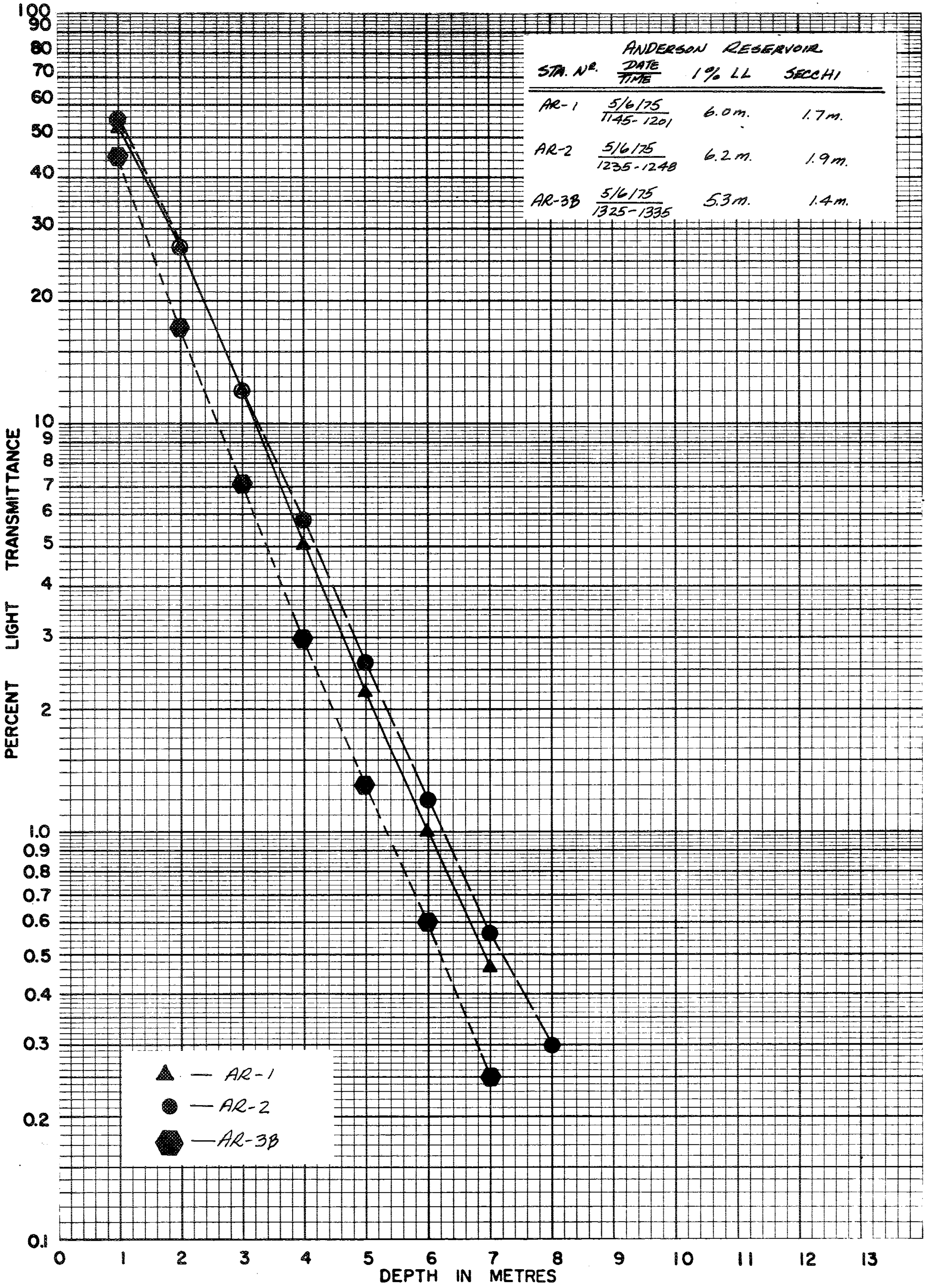
ANDERSON RESERVOIR

STA. Nº.	DATE / TIME	1% LL	SECCHI
AR-1	10/30/74 / 1340-1400	7.6m.	2.1m.
AR-2	10/30/74 / 1407-1415	5.1m.	1.3m.



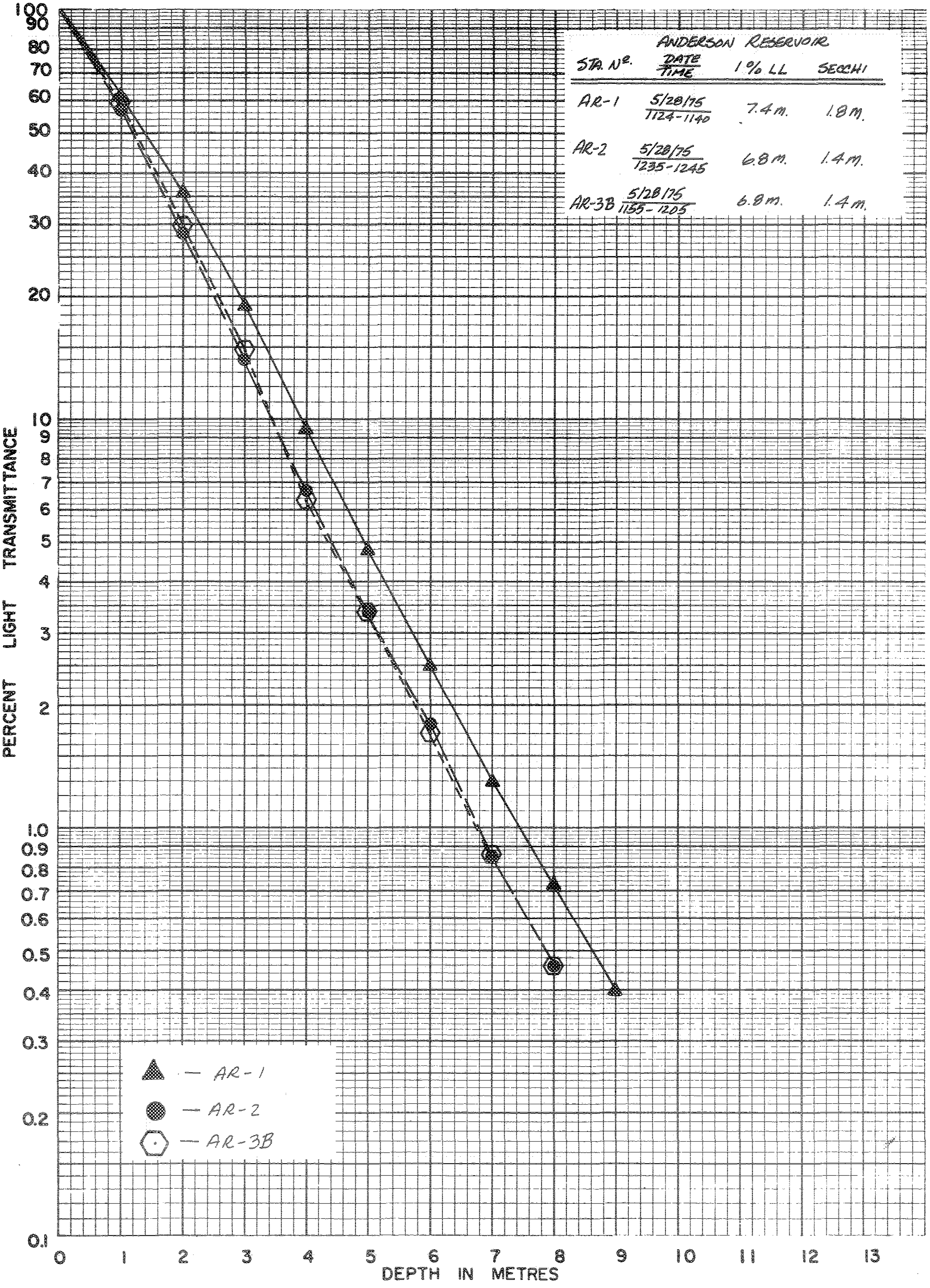
ANDERSON RESERVOIR

STA. Nº	DATE / TIME	1% LL	SECCHI
AR-1	4/8/75 1220-1236	4.6 m.	1.3 m.
AR-2	4/8/75 1355-1403	3.9 m.	1.1 m.
AR-3A	4/8/75 1330-1341	4.4 m.	1.3 m.



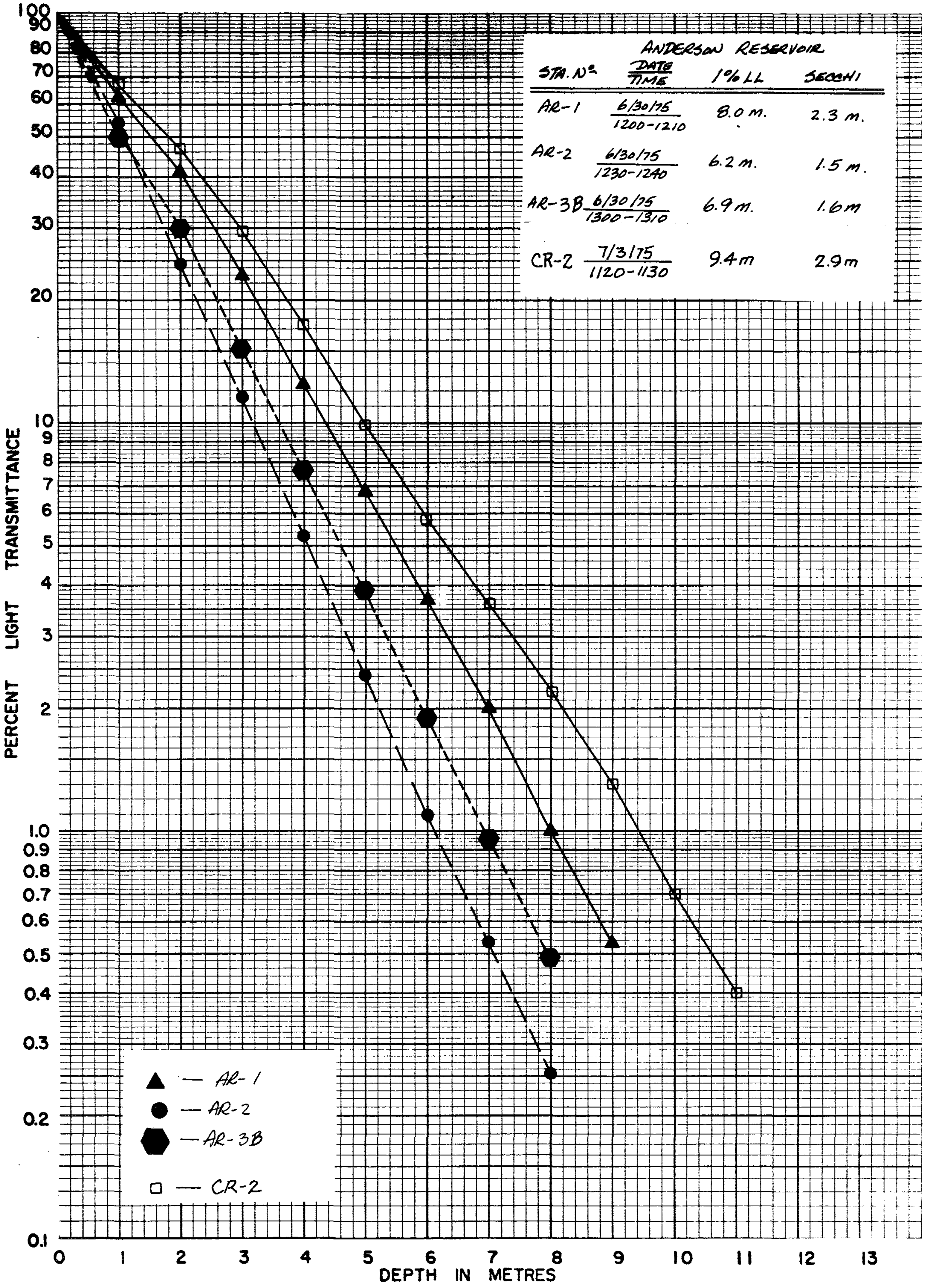
ANDERSON RESERVOIR

STA. Nº.	DATE / TIME	1% LL	SECCHI
AR-1	5/6/75 1145-1201	6.0 m.	1.7 m.
AR-2	5/6/75 1235-1248	6.2 m.	1.9 m.
AR-3B	5/6/75 1325-1335	5.3 m.	1.4 m.



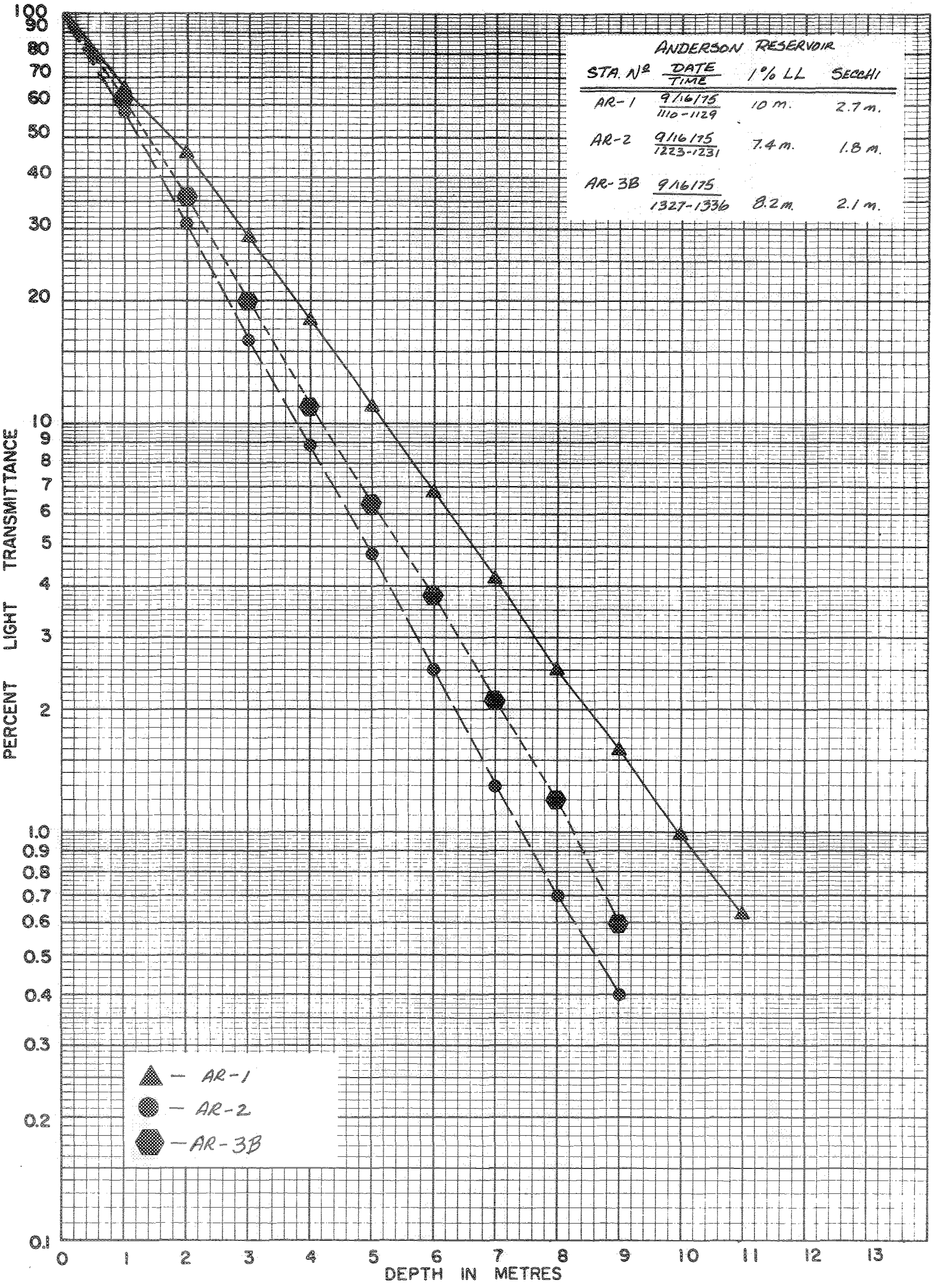
ANDERSON RESERVOIR

STA. Nº.	DATE / TIME	1% LL	SECCHI
AR-1	5/28/75 1124-1140	7.4 m.	1.8 m.
AR-2	5/28/75 1235-1245	6.8 m.	1.4 m.
AR-3B	5/28/75 1155-1205	6.8 m.	1.4 m.



ANDERSON RESERVOIR

STA. Nº	DATE / TIME	1% LL	SECCHI
AR-1	6/30/75 1200-1210	8.0 m.	2.3 m.
AR-2	6/30/75 1230-1240	6.2 m.	1.5 m.
AR-3B	6/30/75 1300-1310	6.9 m.	1.6 m
CR-2	7/3/75 1120-1130	9.4 m	2.9 m



ANDERSON RESERVOIR

STA. Nº	DATE TIME	1% LL	SECCHI
AR-1	9/16/75 1110-1129	10 m.	2.7 m.
AR-2	9/16/75 1223-1231	7.4 m.	1.8 m.
AR-3B	9/16/75 1327-1336	8.2 m.	2.1 m.

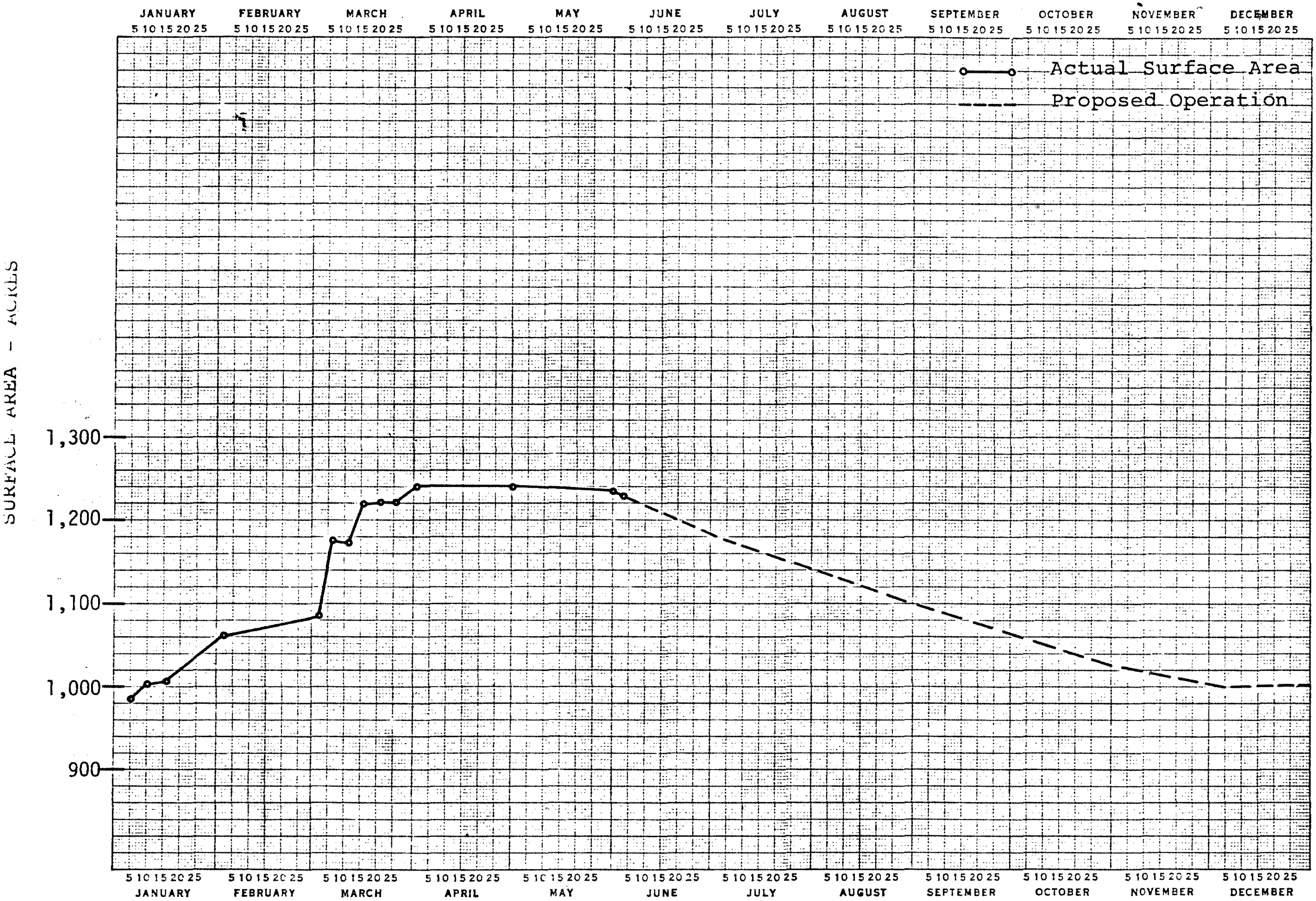
APPENDIX J

RESERVOIR SURFACE ELEVATION

Anderson Reservoir

Coyote Reservoir

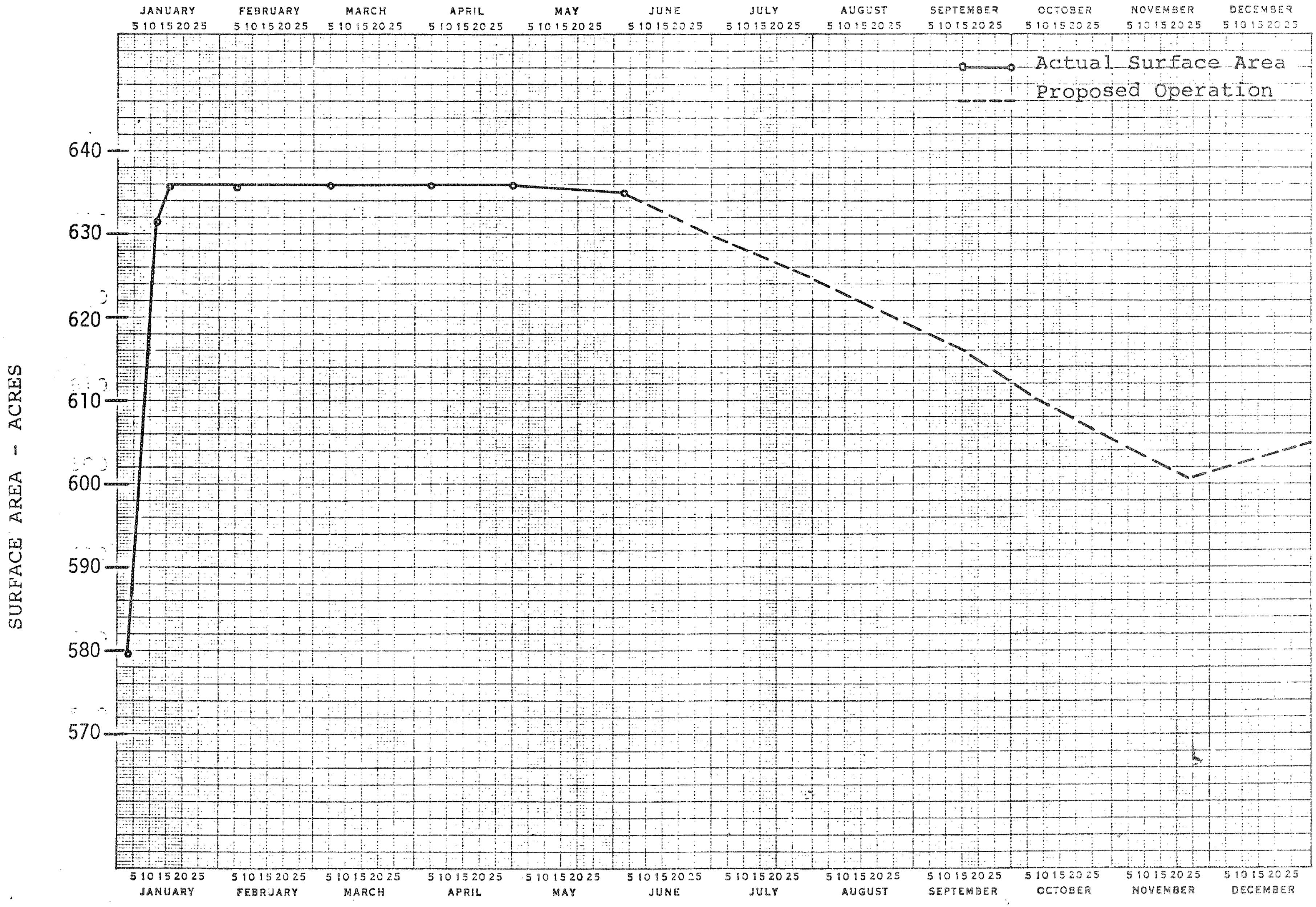
K+E 1 YEAR BY DAYS X 250 DIVISIONS 46 2893 MADE IN U.S.A. KEUFFEL & ESSER CO.



1974 ANDERSON RESERVOIR

RESERVOIR WATER SURFACE AREA VS. TIME

X 250 DIVISIONS MADE IN U.S.A.
KEUFFEL & ESSER CO.



1974 COYOTE RESERVOIR

RESERVOIR WATER SURFACE AREA VS. TIME